A CATALOGUE OF

BOHN'S VARIOUS LIBRARIES,

PUBLISHED BY

BELL AND DALDY,

6, YORK STREET, COVENT GARDEN,
LONDON.

I.

Bohn's Standard Library.

A SERIES OF THE BEST ENGLISH AND FOREIGN AUTHORS, PRINTED IN POST 8VO., AND PUBLISHED AT 3*s.* 6*d.* PER VOLUME (EXCEPTING THOSE MARKED OTHERWISE).

Bacon's Essays, Apophthegms, Wisdom of the Ancients, New Atlantis, and Henry VII., with Introduction and Notes. *Portrait.*

Beaumont and Fletcher, a popular Selection from. By LEIGH HUNT.

Beckmann's History of Inventions, Discoveries, and Origins. Revised and enlarged. *Portraits.* In 2 vols.

Bremer's (Miss) Works. Translated by MARY HOWITT. *Portrait.* In 4 vols.
Vol. 1. The Neighbours and other Tales.
Vol. 2. The President's Daughter.
Vol. 3. The Home, and Strife and Peace.
Vol. 4. A Diary, the H—— Family, &c.

Butler's (Bp.) Analogy of Religion, and Sermons, with Notes. *Portrait.*

Carafas (The) of Maddaloni: and Naples under Spanish Dominion. Translated from the German of Alfred de Reumont.

Carrel's Counter Revolution in England. Fox's History and Lonsdale's Memoir of James II. *Portrait.*

Cellini (Benvenuto), Memoirs of. Translated by ROSCOE. *Portrait.*

Coleridge's (S. T.) Friend. A Series

Cowper's Complete Works. Edited, with Memoir of the Author, by SOUTHEY. *Illustrated with* 50 *Engravings.* In 8 vols.
Vols. 1 to 4. Memoir and Correspondence.
Vols. 5 and 6. Poetical Works. *Plates.*
Vol. 7. Homer's Iliad. *Plates.*
Vol. 8. Homer's Odyssey. *Plates.*

Coxe's Memoirs of the Duke of Marlborough. *Portraits.* In 3 vols.
⁂ An Atlas of the plans of Marlborough's campaigns, 4to, 10*s.* 6*d.*

—— **History of the House of** Austria. *Portraits.* In 4 vols.

De Lolme on the Constitution of England. Edited, with Notes, by JOHN MACGREGOR.

Emerson's Complete Works. In 2 vols.

Foster's (John) Life and Correspondence. Edited by J. E. RYLAND. In 2 vols.

—— **Lectures at Broadmead** Chapel. Edited by J. E. RYLAND. In 2 vols.

—— **Critical Essays.** Edited by J. E. RYLAND. In 2 vols.

—— **Essays—On Decision of Character,** &c. &c.

—— **Essays—On the Evils of Popular Ignorance.**

—— **Fosteriana: Thoughts, Reflections,** and Criticisms of the late JOHN FOSTER, selected from periodical papers,
HENRY G. BOHN (nearly

laneous Works. In-
ssay on Doddridge. *Pre-*

ew) Principal Works.
Portrait.

22900255980

Med
K26009

to Eng-

3 Books;

ance, and Switzerland. *Portrait.*

- Vol. 3. Faust, Iphigenia, Torquato Tasso, Egmont, &c., by Miss SWANWICK; and Götz von Berlichingen, by Sir WALTER SCOTT. *Frontispiece.*
- Vol. 4. Novels and Tales.
- Vol. 5. Wilhelm Meister's Apprenticeship.

Gregory's (Dr.) Evidences, Doctrines, and Duties of the Christian Religion.

Guizot's Representative Government. Translated by A. R. SCOBLE.

——— **History of the English Revolution** of 1640. Translated by WILLIAM HAZLITT. *Portrait.*

——— **History of Civilization.** Translated by WILLIAM HAZLITT. In 3 vols. *Portrait.*

Hall's (Rev. Robert) Miscellaneous Works and Remains, with Memoir by Dr. GREGORY, and an Essay on his Character by JOHN FOSTER. *Portrait.*

Heine's Poems, complete, from the German, by E. A. BOWRING. New Edition, enlarged. 5*s.*

Hungary: its History and Revolutions; with a Memoir of Kossuth from new and authentic sources. *Portrait.*

Hutchinson (Colonel), Memoirs of, and an Account of the Siege of Lathom House. *Portrait.*

James's (G. P. R.) Richard Coeur-de-Lion, King of England. *Portraits.* In 2 vols.

——— **Louis XIV.** *Portraits.* In 2 vols.

Junius's Letters, with Notes, Additions, and an Index. In 2 vols.

Lamartine's History of the Girondists. *Portraits.* In 3 vols.

——— **Restoration of the Monarchy,** with Index. *Portraits.* In 4 vols.

——— **French Revolution of 1848,** with a fine *Frontispiece.*

Lamb's (Charles) Elia and Eliana. Complete Edition.

Lanzi's History of Painting. Translated by ROSCOE. *Portraits.* In 3 vols.

Locke's Philosophical Works, containing an Essay on the Human Understanding, &c., with Notes and Index by J. A. St. JOHN. *Portrait.* In 2 vols.

——— **Life and Letters,** with Extracts from his Common-Place Books, by Lord KING.

Luther's Table Talk. Translated by WILLIAM HAZLITT. *Portrait.*

Machiavelli's History of Florence, The Prince, and other Works. *Portrait.*

Menzel's History of Germany. *Portraits.* In 3 vols.

Michelet's Life of Luther. Translated by WILLIAM HAZLITT.

——— **Roman Republic.** Translated by WILLIAM HAZLITT.

——— **French Revolution,** with Index. *Frontispiece.*

Mignet's French Revolution from 1789 to 1814. *Portrait.*

Milton's Prose Works, with Index. *Portraits.* In 5 vols.

Mitford's (Miss) Our Village. Improved Ed., complete. *Illustrated.* 2 vols.

Neander's Church History. Translated: with General Index. In 10 vols.

——— **Life of Christ.** Translated.

——— **First Planting of Christianity,** and Antignostikus. Translated. In 2 vols.

——— **History of Christian Dogmas.** Translated. In 2 vols.

——— **Christian Life in the Early** and Middle Ages, including his 'Light in Dark Places.' Translated.

Ockley's History of the Saracens. Revised and completed. *Portrait.*

Pearson on the Creed. New Edition. With Analysis and Notes. Double Vol. 5*s.*

Ranke's History of the Popes. Translated by E. FOSTER. In 3 vols.

——— **Servia and the Servian Revolution.**

Reynolds' (Sir Joshua) Literary Works. *Portrait.* In 2 vols.

Roscoe's Life and Pontificate of Leo X., with the Copyright Notes, and an Index. *Portraits.* In 2 vols.

——— **Life of Lorenzo de Medici,** with the Copyright Notes, &c. *Portrait.*

Russia, History of, by WALTER K. KELLY. *Portraits.* In 2 vols.

Schiller's Works. Translated into English. In 4 vols.

- Vol. 1. Thirty Years' War, and Revolt of the Netherlands.
- Vol. 2. *Continuation of* the Revolt of the Netherlands; Wallenstein's Camp; the Piccolomini; the Death of Wallenstein; and William Tell.
- Vol. 3. Don Carlos, Mary Stuart, Maid of Orleans, and Bride of Messina.
- Vol. 4. The Robbers, Fiesco, Love and Intrigue, and the Ghost-Seer.

Schlegel's Philosophy of Life and of Language, translated by A. J. W. Morrison.

—— **History of Literature, Ancient and Modern.** Now first completely translated, with General Index.

—— **Philosophy of History.** Translated by J. B. Robertson. *Portrait.*

—— **Dramatic Literature.** Translated. *Portrait.*

—— **Modern History.**

—— **Æsthetic and Miscellaneous** Works.

Sheridan's Dramatic Works and Life. *Portrait.*

Sismondi's Literature of the South of Europe. Translated by Roscoe. *Portraits.* In 2 vols.

Smith's (Adam) Theory of the Moral Sentiments; with his Essay on the First Formation of Languages.

Smyth's (Professor) Lectures on Modern History. In 2 vols.

—— **Lectures on the French Re**volution. In 2 vols.

Sturm's Morning Communings with God, or Devotional Meditations for Every Day in the Year.

Taylor's (Bishop Jeremy) Holy Living and Dying. *Portrait.*

Thierry's Conquest of England by the Normans. Translated by William Hazlitt. *Portrait.* In 2 vols.

Thierry's Tiers Etat, or Third Estate, in France. Translated by F. B. Wells. 2 vols. in one. 5*s.*

Vasari's Lives of the Painters, Sculptors, and Architects. Translated by Mrs. Foster. 5 vols.

Wesley's (John) Life. By Robert Southey. New and Complete Edition. Double volume. 5*s.*

Wheatley on the Book of Common Prayer. *Frontispiece.*

II.

Uniform with Bohn's Standard Library.

Bailey's (P. J.) Festus. A Poem. Seventh Edition, revised and enlarged. 5*s.*

British Poets, from Milton to Kirke White. Cabinet Edition. In 4 vols. 14*s.*

Cary's Translation of Dante's Heaven, Hell, and Purgatory. 7*s.* 6*d.*

Chillingworth's Religion of Protestants. 3*s.* 6*d.*

Classic Tales. Comprising in One volume the most esteemed works of the imagination. 3*s.* 6*d.*

Demosthenes and Æschines, the Orations of. Translated by Leland. 3*s.*

Dickson and Mowbray on Poultry. Edited by Mrs. Loudon. *Illustrations by Harvey.* 5*s.*

Guizot's Monk and His Contemporaries. 3*s.* 6*d.*

Hawthorne's Tales. In 2 vols., 3*s.* 6*d.* each.

- Vol. 1. Twice Told Tales, and the Snow Image.
- Vol. 2. Scarlet Letter, and the House with the Seven Gables.

Henry's (Matthew) Commentary on the Psalms. *Numerous Illustrations.* 4*s.* 6*d.*

Hofland's British Angler's Manual. Improved and enlarged, by Edward Jesse, Esq. *Illustrated with* 60 *Engravings.* 7*s.* 6*d.*

Horace's Odes and Epodes. Translated by the Rev. W. Sewell. 3*s.* 6*d.*

Irving's (Washington) Complete Works. In 10 vols. 3*s.* 6*d.* each.

- Vol. 1. Salmagundi and Knickerbocker. *Portrait of the Author.*
- Vol. 2. Sketch Book and Life of Goldsmith.
- Vol. 3. Bracebridge Hall and Abbotsford and Newstead.
- Vol. 4. Tales of a Traveller and the Alhambra.
- Vol. 5. Conquest of Granada and Conquest of Spain.
- Vols. 6 and 7. Life of Columbus and Companions of Columbus, with a new Index. *Fine Portrait.*
- Vol. 8. Astoria and Tour in the Prairies.
- Vol. 9. Mahomet and his Successors.
- Vol. 10. Conquest of Florida and Adventures of Captain Bonneville.

Irving's (Washington) Life of Washington. *Portrait.* In 4 vols. 3*s.* 6*d.* each.

——— **(Washington) Life and Letters.** By his Nephew, PIERRE E. IRVING. In 2 vols. 3*s.* 6*d.* each.

For separate Works, see Cheap Series, p. 15.

Joyce's Introduction to the Arts and Sciences. With Examination Questions. 3*s.* 6*d.*

Lawrence's Lectures on Comparative Anatomy, Physiology, Zoology, and the Natural History of Man. *Illustrated.* 5*s.*

Lilly's Introduction to Astrology. With numerous Emendations, by ZADKIEL. 5*s.*

Miller's (Professor) History, Philosophically considered. In 4 vols. 3*s.* 6*d.* each.

Parkes's Elementary Chemistry. 3*s.* 6*d.*

Political (The) Cyclopædia. In 4 vols. 3*s.* 6*d.* each.

——— Also bound in 2 vols. with leather backs. 15*s.*

Shakespeare's Works, with Life, by CHALMERS. In diamond type. 3*s.* 6*d.*

——— or, *with* 40 *Engravings.* 5*s.*

Uncle Tom's Cabin. With Introductory Remarks by the Rev. J. SHERMAN. *Printed in a large clear type. Illustrations.* 3*s.* 6*d.*

Wide, Wide World. By ELIZABETH WETHERALL. *Illustrated with* 10 *highly-finished Steel Engravings.* 3*s.* 6*d.*

III.

Bohn's Historical Library.

UNIFORM WITH THE STANDARD LIBRARY, AT 5*s.* PER VOLUME.

Evelyn's Diary and Correspondence. *Illustrated with numerous Portraits, &c.* In 4 vols.

Pepys' Diary and Correspondence. Edited by Lord Braybrooke. With important Additions, including numerous Letters. *Illustrated with many Portraits.* In 4 vols.

Jesse's Memoirs of the Reign of the Stuarts, including the Protectorate. With General Index. *Upwards of* 40 *Portraits.* In 3 vols.

Jesse's Memoirs of the Pretenders and their Adherents. 6 *Portraits.*

Nugent's (Lord) Memorials of Hampden, his Party, and Times. 12 *Portraits.*

Strickland's (Agnes) Lives of the Queens of England, from the Norman Conquest. From official records and authentic documents, private and public. Revised Edition. In 6 vols.

IV.

Bohn's Library of French Memoirs.

UNIFORM WITH THE STANDARD LIBRARY, AT 3*s.* 6*d.* PER VOLUME.

Memoirs of Philip de Commines, containing the Histories of Louis XI. and Charles VIII., and of Charles the Bold, Duke of Burgundy. To which is added, The Scandalous Chronicle, or Secret History of Louis XI. *Portraits.* In 2 vols.

Memoirs of the Duke of Sully, Prime Minister to Henry the Great. *Portraits.* In 4 vols.

V.

Bohn's School and College Series.

UNIFORM WITH THE STANDARD LIBRARY.

Bass's Complete Greek and English Lexicon to the New Testament. 2*s.* 6*d.*

New Testament (The) in Greek. Griesbach's Text, with the various readings of Mill and Scholz at foot of page, and Parallel References in the margin; also a Critical Introduction and Chronological Tables. *Two fac-similes of Greek Manuscripts.* (650 pages.) 3*s.* 6*d.*; or with the Lexicon. 5*s.*

VI.

Bohn's Philological and Philosophical Library.

UNIFORM WITH THE STANDARD LIBRARY, AT 5*s.* PER VOLUME (EXCEPTING THOSE MARKED OTHERWISE).

Hegel's Lectures on the Philosophy of History. Translated by J. SIBREE, M.A.

Herodotus, Turner's (Dawson W.) Notes to. With Map, &c.

——— Wheeler's Analysis and Summary of.

Kant's Critique of Pure Reason. Translated by J. M. D. MEIKLEJOHN.

Logic; or, the Science of Inference. A Popular Manual. By J. DEVEY.

Lowndes' Bibliographer's Manual of English Literature. New Edition, enlarged, by H. G. BOHN. Parts I. to X. (A to Z). 3*s.* 6*d.* each. Part XI. (the Appendix Volume). 5*s.* Or the 11 parts in 4 vols., half morocco, 2*l.* 2*s.*

Smith's (Archdeacon) Complete Collection of Synonyms and Antonyms.

Tennemann's Manual of the History of Philosophy. Continued by J. R. MORELL.

Thucydides, Wheeler's Analysis of.

Wheeler's (M.A.) W. A., Dictionary of Names of Fictitious Persons and Places.

Wright's (T.) Dictionary of Obsolete and Provincial English. In 2 vols. 5*s.* each; or half-bound in 1 vol., 10*s.* 6*d.*

VII.

Bohn's British Classics.

UNIFORM WITH THE STANDARD LIBRARY, AT 3*s.* 6*d.* PER VOLUME.

Addison's Works. With the Notes of Bishop HURD, much additional matter, and upwards of 100 Unpublished Letters. Edited by H. G. BOHN. *Portrait and* 8 *Engravings on Steel.* In 6 vols.

Burke's Works. In 6 Volumes.

Vol. 1. Vindication of Natural Society, On the Sublime and Beautiful, and Political Miscellanies.
Vol. 2. French Revolution, &c.
Vol. 3. Appeal from the New to the Old Whigs; the Catholic Claims, &c.
Vol. 4. On the Affairs of India, and Charge against Warren Hastings.
Vol. 5. Conclusion of Charge against Hastings; on a Regicide Peace, &c.
Vol. 6. Miscellaneous Speeches, &c. With a General Index.

Burke's Speeches on Warren Hastings; and Letters. With Index. In 2 vols. (forming vols. 7 and 8 of the works).

——— Life. By PRIOR. New and revised Edition. *Portrait.*

Defoe's Works. Edited by Sir WALTER SCOTT. In 7 vols.

Gibbon's Roman Empire. Complete and Unabridged, with Notes; including, in addition to the Author's own, those of Guizot, Wenck, Niebuhr, Hugo, Neander, and other foreign scholars; and an elaborate Index. Edited by an English Churchman. In 7 vols.

VIII.

Bohn's Ecclesiastical Library.

UNIFORM WITH THE STANDARD LIBRARY, AT 5*s.* PER VOLUME.

Eusebius' Ecclesiastical History. With Notes.

Philo Judæus, Works of; the contemporary of Josephus. Translated by C. D. Yonge. In 4 vols.

Socrates' Ecclesiastical History, in continuation of Eusebius. With the Notes of Valesius.

Sozomen's Ecclesiastical History, from A.D. 324-440: and the Ecclesiastical History of Philostorgius.

Theodoret and Evagrius. Ecclesiastical Histories, from A.D. 332 to A.D. 427, and from A.D. 431 to A.D. 544.

IX.

Bohn's Antiquarian Library.

UNIFORM WITH THE STANDARD LIBRARY, AT 5s. PER VOLUME.

Bede's Ecclesiastical History, and Anglo-Saxon Chronicle.

Boethius's Consolation of Philosophy. In Anglo-Saxon, with the A. S. Metres, and an English Translation, by the Rev. S. Fox.

Brand's Popular Antiquities of England, Scotland, and Ireland. By Sir Henry Ellis. In 3 vols.

Browne's (Sir Thomas) Works. Edited by Simon Wilkin. In 3 vols.

- Vol. 1. The Vulgar Errors.
- Vol. 2. Religio Medici, and Garden of Cyrus.
- Vol. 3. Urn-Burial, Tracts, and Correspondence.

Chronicles of the Crusaders. Richard of Devizes, Geoffrey de Vinsauf, Lord de Joinville.

Chronicles of the Tombs. A Collection of Remarkable Epitaphs. By T. J. Pettigrew, F.R.S., F.S.A.

Early Travels in Palestine. Willibald, Sæwulf, Benjamin of Tudela, Mandeville, La Brocquiere, and Maundrell; all unabridged. Edited by Thomas Wright.

Ellis's Early English Metrical Romances. Revised by J. O. Halliwell.

Florence of Worcester's Chronicle, with the Two Continuations: comprising Annals of English History to the Reign of Edward I.

Giraldus Cambrensis' Historical Works: Topography of Ireland; History of the Conquest of Ireland; Itinerary through Wales; and Description of Wales. With Index. Edited by Thos. Wright.

Handbook of Proverbs. Comprising all Ray's English Proverbs, with additions; his Foreign Proverbs; and an Alphabetical Index.

Henry of Huntingdon's History of the English, from the Roman Invasion to Henry II.; with the Acts of King Stephen, &c.

Ingulph's Chronicle of the Abbey of Croyland, with the Continuations by Peter of Blois and other Writers. By H. T. Riley.

Keightley's Fairy Mythology. *Frontispiece by Cruikshank.*

Lamb's Dramatic Poets of the Time of Elizabeth; including his Selections from the Garrick Plays.

Lepsius's Letters from Egypt, Ethiopia, and the Peninsula of Sinai.

Mallet's Northern Antiquities. By Bishop Percy. With an Abstract of the Eyrbiggia Saga, by Sir Walter Scott. Edited by J. A. Blackwell.

Marco Polo's Travels. The Translation of Marsden. Edited by Thomas Wright.

Matthew Paris's Chronicle. In 5 vols.

- First Section: Roger of Wendover's Flowers of English History, from the Descent of the Saxons to A.D. 1235. Translated by Dr. Giles. In 2 vols.
- Second Section: From 1235 to 1273. With Index to the entire Work. In 3 vols.

Matthew of Westminster's Flowers of History, especially such as relate to the affairs of Britain; to A.D. 1307. Translated by C. D. Yonge. In 2 vols.

Ordericus Vitalis' Ecclesiastical History of England and Normandy. Translated with Notes, by T. Forester, M.A. In 4 vols.

Pauli's (Dr. R.) Life of Alfred the Great. Translated from the German.

Polyglot of Foreign Proverbs. With English Translations, and a General Index, bringing the whole into parallels, by H. G. Bohn.

Roger De Hoveden's Annals of English History; from A.D. 732 to A.D. 1201. Edited by H. T. Riley. In 2 vols.

Six Old English Chronicles, viz.:— Asser's Life of Alfred, and the Chronicles of Ethelwerd, Gildas, Nennius, Geoffrey of Monmouth, and Richard of Cirencester.

William of Malmesbury's Chronicle of the Kings of England. Translated by Sharpe.

Yule-Tide Stories. A Collection of Scandinavian Tales and Traditions. Edited by B. Tohrpe.

X.

Bohn's Illustrated Library.

UNIFORM WITH THE STANDARD LIBRARY, AT 5*s.* PER VOLUME (EXCEPTING THOSE MARKED OTHERWISE).

Allen's Battles of the British Navy. Revised and enlarged. *Numerous fine Portraits.* In 2 vols.

Andersen's Danish Legends and Fairy Tales. With many Tales not in any other edition. Translated by CAROLINE PEACHEY. 120 *Wood Engravings.*

Ariosto's Orlando Furioso. In English Verse. By W. S. ROSE. *Twelve fine Engravings.* In 2 vols.

Bechstein's Cage and Chamber Birds. Including Sweet's Warblers. Enlarged edition. *Numerous plates.*

*** All other editions are abridged.

With the plates coloured. 7*s.* 6*d.*

Bonomi's Nineveh and its Palaces. New Edition, revised and considerably enlarged, both in matter and Plates, including a Full Account of the Assyrian Sculptures recently added to the National Collection. *Upwards of* 300 *Engravings.*

Butler's Hudibras. With Variorum Notes, a Biography, and a General Index. Edited by HENRY G. BOHN. *Thirty beautiful Illustrations.*

——; or, *further illustrated with* 62 *Outline Portraits.* In 2 vols. 10*s.*

Cattermole's Evenings at Haddon Hall. 24 *exquisite Engravings on Steel, from designs by himself,* the Letterpress by the BARONESS DE CARABELLA.

China, Pictorial, Descriptive, and Historical, with some Account of Ava and the Burmese, Siam, and Anam. *Nearly* 100 *Illustrations.*

Craik's (G. L.) Pursuit of Knowledge under Difficulties, illustrated by Anecdotes and Memoirs. Revised Edition. *With numerous Portraits.*

Cruikshank's Three Courses and a Dessert. A Series of Tales, *with* 50 *humorous Illustrations by Cruikshank.*

Dante. Translated by I. C. WRIGHT, M.A. New Edition, carefully revised. *Portrait and* 34 *Illustrations on Steel, after Flaxman.*

Didron's History of Christian Art; or, Christian Iconography. From the French. *Upwards of* 150 *beautiful outline Engravings.* Vol. I. (Mons. Didron has not yet written the second volume.)

Flaxman's Lectures on Sculpture. *Numerous Illustrations.* 6*s.*

Gil Blas, The Adventures of. 24 *Engravings on Steel, after Smirke, and* 10 *Etchings by George Cruikshank.* (612 pages.) 6*s.*

Grimm's Gammer Grethel; or, German Fairy Tales and Popular Stories. Translated by EDGAR TAYLOR. *Numerous Woodcuts by Cruikshank.* 3*s.* 6*d.*

Holbein's Dance of Death, and Bible Cuts. *Upwards of* 150 *subjects, beautifully engraved in fac-simile,* with Introduction and Descriptions by the late FRANCIS DOUCE and Dr. T. F. DIBDIN. 2 vols. in 1. 7*s.* 6*d.*

Howitt's (Mary) Pictorial Calendar of the Seasons. Embodying the whole of Aiken's Calendar of Nature. *Upwards of* 100 *Engravings.*

—— (Mary and William) Stories of English and Foreign Life. *Twenty beautiful Engravings.*

Hunt's (Leigh) Book for a Corner. *Eighty extremely beautiful Engravings.*

India, Pictorial, Descriptive, and Historical, from the Earliest Times to the Present. *Upwards of* 100 *fine Engravings on Wood, and a Map.*

Jesse's Anecdotes of Dogs. New Edition, with large additions. *Numerous fine Woodcuts after Harvey, Bewick, and others.*

——; or, *with the addition of* 34 *highly-finished Steel Engravings, after Cooper, Landseer, &c.* 7*s.* 6*d.*

Kitto's Scripture Lands and Biblical Atlas. 24 *Maps, beautifully engraved on Steel,* with a Consulting Index.

——; or, *with the maps coloured,* 7*s.* 6*d.*

Krummacher's Parables. Translated from the German. *Forty Illustrations by Clayton, engraved by Dalziel.*

Lindsay's (Lord) Letters on Egypt, Edom, and the Holy Land. New Edition, enlarged. *Thirty-six beautiful Engravings, and* 2 *Maps.*

Lodge's Portraits of Illustrious Personages of Great Britain, with Memoirs. *Two Hundred and Forty Portraits, beautifully engraved on Steel.* 8 vols.

BOHN'S SCIENTIFIC LIBRARY.

HAND-BOOK

OF

DOMESTIC MEDICINE.

15673

A
HAND-BOOK
OF
DOMESTIC MEDICINE;

POPULARLY ARRANGED.

BY

AN EMINENT PHYSICIAN.

LONDON:
BELL & DALDY, YORK STREET, COVENT GARDEN.
1867.

78772991

WELLCOME INSTITUTE
LIBRARY
Coll. welMOmec
Call
No. WB

LONDON: PRINTED BY WILLIAM CLOWES AND SONS, STAMFORD STREET,
AND CHARING CROSS.

PREFACE.

At the invitation of Mr. Bohn, the Editor undertook to compile for his "Scientific Library" a Hand-book of Domestic Medicine, after the manner of Buchan. It is now half a century since that able physician's death, during which period the practice of medicine has undergone considerable changes and improvements, of which it became the duty of the Editor to avail himself, whilst preserving at the same time a familiar style as far as it was compatible with the subject.

A work which purposes the amelioration of the condition of our fellow creatures may be acceptable to the many, without being in the least detrimental to the qualified medical practitioner. Indeed, if any one should imagine that, by consulting this work, he may become his own doctor, he will be disappointed, and mistake its intention. The object in view, is to furnish help in cases of emergency, and to afford familiar instruction on common occasions. Parents and heads of families are, therefore, entreated not to tamper with their children, or rely on books or their own judgment, when the aid of a medical practitioner can be obtained.

This volume may also be acceptable to country clergymen, who have it in their power to be eminently useful to their poor parishioners in time of sickness. By means of the rules laid down, they may be enabled to distinguish diseases, and have the satisfaction of relieving suffering. Again, in many of the emergencies and accidents of life, in a thinly-peopled country, distant from medical aid, especially among emigrants in a newly formed colony, ready information as to what is necessary may often be of essential service in mitigating disease and even in preserving life. Hence a "Domestic Medicine," in which this information is communicated in a familiar style, is of considerable value; and it is hoped that such will be found to be the case in the present work. The familiar and simple names of medicines have been generally used instead of the more scientific, and the arrangement of the book in the form of a dictionary, as being readily referred to, was deemed preferable to one more systematic or formal.

Some of the Faculty disapprove of works of this kind, but it is apprehended without sufficient reason. Persons who have the means will always have recourse to medical men of ability, and they will do so with greater confidence and readiness when they believe that medicine is a rational science, than when they take it to be a matter of mere conjecture and empiricism. Many will still, in defiance of either books or the profession, resort to a quack doctor, or patent medicines, often to the great injury of their health as well as their pocket.

These few remarks cannot be better terminated than in the words of Buchan. He says—

"To assist the well-meant endeavours of the humane and benevolent in relieving distress; to eradicate dangerous and hurtful prejudices; to guard the ignorant and credulous against the frauds and impositions of quacks and impostors; and to show men what is in their own power, both with regard to the prevention and cure of diseases, are certainly objects worthy of the physician's attention. These were the leading views in composing and publishing the following sheets. They were suggested by an attention to the conduct of mankind, with regard to medicine, in the course of a pretty long practice in different parts of this island, during which the author has often had occasion to wish that his patients, or those about them, had been possessed of some such plain directory for regulating their conduct."

As the names of all authors whose writings have been quoted, or whose opinions have been immediately adopted, are printed in the text, it only remains for the Editor to express his general obligations to the works (among many others) of the following distinguished authors:—Ashwell, Bateman, H. Bennett, R. Bennett, Birkett, Sir B. Brodie, Braithwaite, Carpenter, Chapman, Churchill, Sir C. M. Clarke, Sir J. Clarke, Cooper, Copland, Dunglison, Elliotson, Sir J. Eyre, Encyclopædia of Practical Medicine, Fownes, Fergusson, Graves, Granville, Gray, Green, Guy, Jas. Johnson, Marshall Hall, Headland, Neligan, Paris, Phillips, Parker, Ranking, Reece, Savory, South, Tanner, Taylor, Thomas, Thompson, Thomson, Watson, West, E. Wilson.

A.

CONTENTS.

PAGE

INTRODUCTION 1

PART I. THE HUMAN BODY IN HEALTH AND DISEASE, the general symptoms and causes of disease, and the general method of prevention, alteration, and cure 3

CHAPTER I. Descriptive Anatomy and Physiology . 3

SECTION 1. Preliminary Remarks . . 3
„ 2. The Bones 4
„ 3. The Muscles . . . 11
„ 4. The Bodily Senses; the Voice . . 15
„ 5. The Nervous System . . 20
„ 6. General View of Self-nutrition . . 23
„ 7. The Blood . . . 24
„ 8. The Tissues 25
„ 9. The Cavities and Regions . . 28
„ 10. The Heart 29
„ 11. The Lungs . . . 30
„ 12. The Blood-vessels . . . 31
„ 13. Circulation and Respiration . 33
„ 14. The Abdominal Viscera, &c. . . 35
„ 15. The Alimentary Canal . . 36

PAGE
SECTION 16. The Pancreas . . . 38
„ 17. The Spleen . . . 38
„ 18. The Liver 39
„ 19. The Kidneys . . . 40
„ 20. The Process of Digestion . . 41
„ 21. The Absorbents . . . 43
„ 22. Sanguification, or the Manufacture of Blood 44
„ 23. Secretion and Excretion . . 45
„ 24. Formation of the Tissues . . 49
„ 25. Animal Heat . . . 50
„ 26. Life 50
„ 27. Organs and Function of Reproduction 51

CHAPTER II. Causes and Signs of Disease . . 52

SECTION 1. Predisposing Causes . . 52
Hereditary States of Body . . 52
Age . . . 53
Sex 54
Personal Peculiarities . 54
Temperament . . . 54

„ 2. Exciting Causes . . 55
Contagion . . . 55
Infection . . . 56
Atmospheric States, or Climate . 56
Food . . . 57
Exercise . . . 63
Rest . . . 64
Clothing . . . 65
Want of Cleanliness . . 65
Damp Clothes, &c. . . 66
Habits of Life and Occupation . 67

PAGE
SECTION 3. Evidences to the Diseased Person . 71

„ 4. Evidences to the Medical Man . 72
The Tongue . . . 73
The Gums and Lips . . 73
The State of the Bowels . . 73
Vomiting . . . 73
The Skin . . . 73
Odour of Body . . 74
The Urine . . . 74
The State of the Circulation . 74

CHAPTER III. Pathology 75

SECTION 1. Pathology of the Fluids . . 75
The Blood . . 75
The Urine . . . 76
The Sweat . . . 77

„ 2. Structural Pathology . . 77
Increased Size . . . 77
Diminished Size . . 78
Structural Change . . 78
Morbid Growths . . 78

„ 3. Pathology of the Circulation . . 80
Congestion . . . 81
Inflammation . . . 82
Ulceration . . . 85
Mortification, or Gangrene . . 85
Hæmorrhage . . 85

„ 4. Pathology of the Nervous System . 86

CHAPTER IV. General Therapeutics . . . 91

PAGE

SECTION 1. Bathing . . . 91
The Cold Bath . . 92
The Hot Bath . . 92
River-bathing . . . 93
The Vapour Bath . . 93
The Russian Bath . . 94
The Hot-Air Bath . . 94
The Shower Bath . . . 94
The Douche Bath . . 94
Topical Baths . . . 95
Mud Baths, Sand Baths, &c. . 95
Sea Bathing . . . 95

" 2. Mineral Waters . . 95

Table of Weights and Measures . . 97

PART II. MATERIA MEDICA . . . 99
Medicines arranged according to their Effects 99
Medicines arranged Alphabetically . . 112

PART III. PRACTICE OF PHYSIC . . . 193
Diseases of Children . . . 193
Diseases arranged Alphabetically . 226

APPENDIX 641
Formulæ of Useful Prescriptions . . 641
Doses of Medicines 660

INDEX 667

INTRODUCTION.

Before entering on the description of the symptoms or treatment of any particular disease, it is obviously convenient, and indeed necessary, to investigate the nature of disease in general; and, as a first step in the inquiry, to come to some definite notion of what is meant by health or the absence of disease.

The English words disease and disorder are admirably adapted to express their meanings, as the opposites of ease and order. The latter words it is useless attempting to define, as they denote elementary ideas, and any further explanation must depend on the use of synonymous words: but this is only to return upon our road, and say that ease and order are the absence of disease and disorder. Here, then, we must rest, and be content with saying that health is the ease and order of the sensations and functions of the human being, physically, intellectually, morally, and spiritually considered. But even by this description, in point of real knowledge we have reached no farther than at the commencement: we have simply stated what all know; and to attain any useful result, the nature of those sensations and functions must be investigated.

In short, we must commence by studying the sciences which treat of the structure and the functions of the various organs of the body. These sciences are called Descriptive Anatomy and Physiology, and form the subjects of the First Chapter.

When we have thus studied the body in its natural and healthy condition, we shall have to consider the various causes which have a tendency to disturb this condition, and the different peculiarities of individuals which tend to modify the effects of these causes. These matters are treated of in the Second Chapter, under the head of Causes and Signs of Disease.

Next follow those sciences which relate to the body in a state of disease. They are called MORBID ANATOMY and PATHOLOGY, and form the subjects of the Third Chapter, in which the organs themselves, and their functions, when in a diseased state, will be individually examined.

NOSOLOGY, which would naturally come next, will not be alluded to, as all attempted scientific classifications of diseases have hitherto been chiefly artificial, and, although no doubt highly useful as a guide to the practical student, and perhaps as a framework to the teacher for imparting instruction, would be quite out of place in a work of this kind.

In the Fourth Chapter, on GENERAL THERAPEUTICS, it was originally intended to offer some suggestions on the treatment of disease in general, but for the reasons therein mentioned, this intention has been abandoned; and although the heading has been allowed to remain, only so much of the matter has been retained as relates to the use of bathing and mineral waters.

The first four chapters, in which the above subjects are treated, make up the First Part of the work.

The PRACTICE OF PHYSIC, scientifically speaking, should come next; but for purposes of convenience it has been here treated of last. In this division every disease will be considered specially, with the mode of treatment. It forms the Third and largest Part of the present work, and indeed is that part towards a correct understanding of which all the previous ones may be considered as necessarily preliminary, and only to that extent requisite.

The MATERIA MEDICA, which is the subject-matter of the Second Part, is a description of medicines and their use, and of some other special curative means ordinarily employed; such as mineral waters, bathing, &c. It consists of two divisions: the first, where the medicines are classed under the headings of their physiological action; and the second, in which each article is described separately. A collection of Formulæ of useful Prescriptions, and a table of Doses of Medicine appropriate for persons of different ages, will be found in the Appendix; a Table of Weights and Measures is given in another part of the book.

PART I.

THE HUMAN BODY IN HEALTH AND DISEASE,

THE GENERAL SYMPTOMS AND CAUSES OF DISEASE, AND THE GENERAL METHOD OF PREVENTION, ALLEVIATION, AND CURE.

CHAP. I.—DESCRIPTIVE ANATOMY AND PHYSIOLOGY.

§ 1. Preliminary Remarks.

In accordance with the plan laid down, the anatomy and physiology of the human body now comes under consideration; and, as an introduction, it will be as well to say a few words as to the place which man occupies in the creation.

First, then, he is a living being, and therefore in structure he is necessarily *organised.* Inorganic matter, of which the mineral world is an example, is of the same structure and property throughout its substance: every organised body, on the contrary, has different structures or organs, discharging specific functions, the most necessary of which, and which indeed are never absent, are those of nourishing the body, and producing its descendant; or, the functions of self-nutrition and reproduction. Even the lowest forms of vegetable life are organised to this extent, but in others the mechanism is more elaborate. Thus we find in plants organs for absorbing or giving out moisture or air, or for resisting or retaining heat, light, &c.

But, besides being organised, man is also *sensitive*, and *conscious* of his relations to the external world; he has, moreover, power altogether within himself of acting upon matter, and to that end he is endowed with voluntary *motion.* He has a *will* to seek things agreeable to his sensations, and in those sensations the pleasure of animal life consists. For the purpose of locomotion he has a framework of bones, acted upon by muscles; as the instruments of his sensations he is furnished with a system of nerves.

Thus far he does not differ from other animals; but in addition to these endowments, he experiences pleasure from the exercise of his intellect, his moral emotions, and his religious sentiments: and, however difficult it may be in some instances to point out whether an act is the result of instinct or of reason, yet the power of abstract reasoning, of entertaining questions concerning his own state, or relating to matters beyond or previous to his experience, separates man from all other animals. The sentient apparatus, with the locomotive as ancillary to it, and the brain as the instrument of the intellect, discharge offices, the enjoyment of which seems to be the chief object of *human* life. But the ultimate functions of man, as an *animal*, are first to keep this machinery going, and, secondly, to reproduce it. What that vital power is which enables him to do so, is of course one of those elementary questions which can never be answered. We cannot lay hold of sensation, or the power of motion, or that of willing, thinking, or mental feeling, though we can point out the organs through which those powers are principally exhibited. We cannot lay hold of gravitation, chemical force, electric force, or vegetable vital force. We know that the same ultimate elements may exist in the earth, the leaf, and the blood; but these same elements are held together in such different forms, that no force, except the specific and appropriate one, can so associate and hold them together in each several case. Nothing but animal vital force can make muscle out of wheat; and nothing but vegetable vital force can make a leaf out of charcoal, flint, air, and water.

But, however impossible it may be to say what vital force is in its essence, it is convenient to consider it as primarily residing in the blood. We have to manufacture bones, muscles, brain, and nerves, from surrounding matter, and it is in the blood that all the materials for their manufacture are found. But there are also two other sets of organs, the one for receiving matters from the external world and pouring them into the blood, and the other for removing waste matters from it. The blood must therefore also contain the materials of these organs: in fact, it contains the materials of all the structures in a vitalised state, and ready to enter into the composition of the body.

§ 2. The Bones.

The HEAD consists of the skull, or cranium, and the face. The former, which contains the brain, is an oval case, composed of eight bones connected together by sutures, or joinings, of different kinds, some toothed, or serrated, some overlapping, and some interlaced. In the skull may be remarked the upper edge of the orbits; the bulgings just above them, which are caused by two chambers, called the frontal sinuses, between the interior and exterior wall of the frontal (or forehead) bone; and the two strong prominences, or processes, one immediately behind each ear, to which the powerful muscles seen in the neck are attached by their upper ends, their lower ends being fixed to the top of the breast-bone. In front of each of these processes is the entrance to the internal ear, which is situated wholly within the body of one of the bones of the skull, called the temporal bone. In the base of the skull there is a large round hole, through which the spinal cord (popularly called the spinal marrow) passes, and two smooth prominences, called condyles, one on each side of this hole, which rest on the highest vertebra (or bone of the spinal column), and allow the head a nodding motion: there are also numerous small orifices for the passage of blood-vessels into the brain and of nerves out from it.

The FACE consists of fourteen bones, rigidly joined together, except in the instance of the lower jaw-bone. We may notice the orbits in which the eyes are situated, with the opening for the passage of the tears into the nose, and, at the back, for the passage of the optic nerves. The nasal cavity appears very large, the nose being completed by cartilage; it is divided by a thin vertical plate of bone, and the roof is pierced by numerous holes, through which the olfactory nerves pass: the cavity opens into the throat by two openings, called the posterior nostrils, and also communicates with the frontal sinuses, and its floor is formed by the palate bone. The ethmoid bone is remarkable, being composed of several very thin plates of bone, forming many chambers communicating with each other, thus affording a very extended surface, over which the olfactory nerves are expanded. In the jaw-bones are the teeth; the lower jaw-bone having a projection on each side, fitting into a corresponding cavity in the upper jaw, and forming the joint by which the jaw opens and shuts, and two prominences for the attachment of the strong muscle which moves the jaw. The teeth are 32 in number, 16 in each jaw. The eight front ones are called incisors; they are single-fanged, and have cutting edges, fitted only for dividing the food. The four canine teeth are on each side of the incisor set in both jaws; they are pointed, and have long single fangs, and are adapted to tear the food. On each side of each jaw are five molars (making 20 molars in all), which are teeth with large irregular surfaces fitted for grinding the food. The eight more forward molars have two points, and are called bicuspid; the others have four or more points.

The SPINAL COLUMN, on which the head rests, consists of twenty-four bones, called vertebræ: seven in the neck, twelve in the back, to which the ribs are attached, and five in the loins. Below these vertebræ of the loins comes the sacrum, a rough triangular bony mass, composed at birth of five separate vertebræ, which afterwards become rigidly joined together; then comes the coccyx, a small triangular bone, like a rudimentary tail, generally in one piece, but sometimes consisting of and always showing the rudiments of four vertebræ. Each vertebra has a more or less cylindrical body, flat at the top and bottom, and several projections, or processes, for the attachment of the ribs and muscles, and for overlapping those of the vertebræ above and below it. The body (which is in front) and the processes together form a horizontal ring. The bodies are attached to each other by fibrous cartilages, which allow a certain slight amount of motion between the vertebræ. The rings, when united, form a continued channel for the spinal cord. There is also a circular space on either side of each ring not filled up, through which the nerves of the spinal marrow pass. The top vertebra (called the atlas) is very different from the others, having no body and no processes: it is merely a roughly-formed ring, with two smooth surfaces on its upper side, on which the condyles, or smooth bony projections from the skull before described, rest. The next vertebra (called the dentata) also is very different form the rest: it has an upright process which passes into the ring of the atlas, occupying the space in front of the spinal marrow, and being prevented from pressing upon it by a ligament across the atlas. It is upon this upright process of the second vertebra that the head, together with the atlas, turns.

The BONY CAVITY OF THE CHEST OR THORAX is formed by the spinal column behind; in front by the breast-bone, which reaches from the bottom of the neck to the pit of the stomach; and at the sides by the ribs. There are twelve ribs on each side, each rib being attached, by a slightly movable joint at one of its ends, to the lateral processes of the dorsal vertebræ. Each of the seven upper ribs is attached at its other end immediately to the sternum by a cartilaginous prolongation, and the cartilages of the three next ribs join together and are attached to the cartilage of the seventh rib. The two lower ribs are unattached in front, and are therefore called floating ribs. The cavity of the thorax, formed in the manner mentioned, is closed in below, and separated from the abdominal cavity by a flat muscle, called the diaphragm, which is attached to the ribs, sternum, and spinal column.

The BASE OF THE TRUNK is formed by a very strong bony structure, open above and below, called the pelvis, which at birth consisted of six bones—leaving out of consideration the sacrum, which really completes it—which become two in adults. Two of these bones (the pubic) meet, and are attached to each other in front, and behind to the sacrum. The hips are formed by the broad spreading iliac bones of the pelvis. The tuberosities of the ischium are the prominences on which the body is supported in the sitting posture; and the deep cup in which the head of the thigh-bone works is in the pelvis. The bladder and some of the organs of generation are situated within it; and upon and above it, within the abdominal cavity, formed by the pelvis below the vertebræ at the back, and enclosed by muscles reaching from the ribs to the pelvis, are the stomach, liver, bowels, pancreas, spleen, kidneys, &c.

The BONES OF THE UPPER EXTREMITY are connected with the trunk by a frame-work, consisting of the scapula, or blade-bone, and the clavicle, or collar-bone. The clavicle is a curved cylindrical bone attached at one end to the upper end of the sternum, and at its other end to the scapula. The scapula is flat and triangular, with a deep thin ridge or spine running along the middle of its external surface. In front is a strong projection, called the acromion, by which it is connected with the clavicle; below this is the glenoid cavity, which receives the head of the humerus. It is attached to the ribs at the back by very strong muscles. The humerus, or upper arm, is a single long cylindrical bone, terminating, at its upper end, in a rounded head, which moves in the glenoid cavity of the scapula; the lower end is formed so that it may fit into the cavity of the ulna (one of the bones of the fore-arm), and form a hinge-joint with it; it has also marked projections on either side for the attachment of the muscles of extension and flexion of the fore-arm. The fore-arm consists of two parallel bones, the ulna and radius. The ulna is on the inside of the arm, connected with the humerus by a hinge-joint, by which the fore-arm is bent upon the upper arm. The body of the bone is cylindrical, the upper end broad and thick, with the cavity to receive the humerus, a prominence at the back forming the elbow. The radius is a smaller bone, connected very strongly by ligaments (or fibrous gristly bands) to the hand at the wrist, and with the ulna at each end, and throughout its whole length by a strong fibrous membrane connecting their edges. The head at the upper end is excavated so as to admit the neck of the ulna, and allow the radius to turn round it, and thus give the rotary motion to the wrist. The hand is divided into three portions: the fingers, the metacarpus, and the carpus. The carpus is the part nearest the wrist, the wrist-joint being indeed a ball-and-socket joint, formed by the rounded ends of the bones of the carpus entering into the cavity at the lower end of the radius. These bones are eight in number, of irregular shape, in two rows, all strongly fastened to each other by ligaments. Towards the hand the carpal bones are hollowed out, so as to receive the metacarpal bones. These latter are cylindrical bones, like those of the fingers, but all firmly knitted together by ligaments and muscles (except that of the thumb), and forming the chief portion of the palm of the hand. The bones of the fingers and thumb are called phalanges. The fingers have three each, the thumb two.

The BONES OF THE LOWER EXTREMITIES are very much stronger and larger than those of the upper; the offices of the legs and arms, indeed, being very different: the former are for locomotion, the latter for prehension. Nevertheless, there is a strong similarity between them. The femur, or thigh-bone, corresponds to the humerus. It is cylindrical; at its upper end the spherical head projects towards the central line of the body, and is received into the acetabulum or large cup in the pelvis, forming a ball-and-socket joint, and having a strong round restraining ligament attached to its centre, so as to keep it within the acetabulum, in addition to the capsular ligament, which goes completely round the joint and is attached to the rough surface of the "neck," which is the part projecting from the body of the bone and terminating in the head. Below the neck are two projections: one exterior, called the great trochanter, which is very prominent, and seen and felt at the top of the thigh; the other interior, called the lesser trochanter. To the great trochanter and the ridge below it running down the femur, are attached the powerful muscles forming the buttocks, which draw the thigh backwards and keep the body upright. To the little trochanter the muscles for bending the thigh on the body are attached. The lower end of the femur has two prominences, or condyles, so formed as to fit into a cavity in the large bone of the lower leg, and form a simple hinge-joint with it. The lower leg, like the fore-arm, consists, in fact, of two bones, the tibia and fibula, but virtually of only one, as the fibula does not turn round the tibia, as the radius does round the ulna, but seems merely to serve as an expansion of the tibia for the attachment of muscle. The tibia is a long bone, the transverse section of the shaft being triangular; the side which faces forwards and inwards being broad and smooth, and merely covered with skin, forming the shin. Its upper end is broad and large, and has two excavations for receiving the condyles of the femur. Its lower end forms the inner ankle, and, in connection with the fibula, the cavity for the reception of the astragalus, one of the principal tarsal bones of the foot. The fibula is a slender bone parallel to the tibia, attached immediately to the tibia at each end, and by an interosseous ligament throughout its length: the lower end forms the outer ankle, and, with the tibia and astragalus, constitutes the ankle-joint. In front of the knee-joint is the patella, or knee-pan, a small flat, heart-shaped bone, attached by a strong ligament to the tibia, movable over the condyles of the femur, and serving as a sort of pulley for the muscles extending the leg. The foot consists of the tarsal bones, the metatarsal bones, and the toe-bones. There are seven tarsal bones firmly joined together, the astragalus being the one which forms the ankle-joint, the os calcis on which it rests being the heel-bone. The metatarsal bones are five, all connected together. The great toe, like the thumb, has two phalanges; the other toes, three each.

The above sketch, hasty and imperfect as it is,—though it is almost longer than ought to be given in a work of this kind,—will perhaps be sufficient to give the reader a general notion of the bony framework.

The STRUCTURE OF BONES is really cancellated,—that is, composed of very thin plates, more or less closely compacted; the parts which appear perfectly dense exhibiting the same cancellated structure when examined by the microscope; they are full of small holes and longitudinal canals, and the larger cylindrical bones are hollow, this space being called the medullary canal. All these chambers and tubes communicate, and are penetrated by blood-vessels, and filled, as well as the medullary canal, with marrow; nerves accompany the artery of the bone, and lymphatics are said to enter; but the bones, as well as the marrow, are insensible. The composition of bone is about one-third part animal matter, chiefly gelatine, one-half part phosphate of lime, and the rest chalk, salt, phosphate of magnesia, and fluoride of calcium. The earthy parts may be removed by steeping the bone in dilute muriatic acid, and the animal parts by burning.

The FORMATION OF BONE is either by deposit of the earthy particles in the cartilage (or gelatine), or in a membrane, as in the bones of the head. The periosteum is a membrane covering the bones, and transmitting blood-vessels into their substance. The structure and process of formation of the teeth are peculiar. In the thickness of each jaw-bone are a number of little membranous bags, abundantly supplied with blood-vessels, each containing a pulpy ball, through which ramify numerous small blood-vessels and nerves. This pulp is gradually converted into ivory, the top or crown of the tooth receiving a coating of enamel deposited from the membrane. As the tooth increases in size it pushes up and cuts through the membrane and gum, the bony socket of the jaw becomes hardened, and almost perfectly closed, allowing only a small nerve and artery to pass into the fang, which latter is never perfectly converted into ivory, but remains a rather soft bone. When examined by a microscope, the ivory is found to consist of small tubes, and the enamel of six-sided prisms, packed closely together, with their ends towards the tooth. The substance of the fang contains about 45 per cent. of animal matter, the ivory 30 per cent., and the enamel not more than 2 per cent. The mineral matter is chiefly phosphate of lime, with some chalk. The incisors, canine, and bicuspid teeth of the permanent set of thirty-two teeth are preceded by a set of so-called milk-teeth, 20 in number (the predecessors of the bicuspid being molars); these begin to fall out about the age of seven, previously to which the first four true molars make their appearance. The last four true molars do not appear until the growth of the body is completed.: they are called wise teeth.

The MOVABLE JOINTS of bones, several of which have been above referred to, are formed by four structures:—1st. Synovial capsules, which are shut membranous bags, the inner surfaces of which secrete an oil (joint-oil), while their outer surfaces are firmly attached to each of the two bony surfaces of the joint, so that when the joint is in action their oily surfaces rub together, and not the bones; 2d. Articular cartilages, which are a kind of hard white elastic gristle, attached to those surfaces of the bones which form the joint; 3rd. Ligaments, which are strong fibrous unelastic bands, interlaced with the periosteum, surrounding the joint, and thus fastening the bones together. 4th. Fibro-cartilages, which somewhat resemble the last, but are elastic. The inter-vertebral cartilages are of this kind. The joints formed by the help of these structures may be of several kinds, some of which are noticed in the description of the skeleton; as the ball-and-socket, the hinge, the rotating, the simple elastic joint (such as that of the vertebræ, between which the elastic cartilage allows a certain amount of play), and some others.

§ 3. THE MUSCLES.

The muscles constitute the flesh, or what is called the meat, of animals. Each muscle is a bundle of fibres, of a tubular structure, endowed with the property of contractility in the direction of their length upon the application of the proper stimuli. But the fibres of different muscles contract after different manners; in some contracting simultaneously, in some alternately, and in others successively. These fibrous tubes may be again separated into minute striped fibres, called fibrillæ, all bound together by areolar tissue.

Muscles are attached directly, or by means of slightly elastic strong membranes, called tendons, to the bones, so as to move them towards each other when the muscle contracts; or, as in the instances of the tongue and heart, to give motion to the muscular mass itself, whether in relation to other parts or in relation to itself alone.

The strength of muscles, physiologically speaking (*i. e.* their power), cannot be judged of by their size and firmness, though the relative powers of the corresponding muscles in two individuals, or of muscles of the same order in one individual, no doubt are indicated by these qualities.

The actual mechanical strength can of course be measured by the weight a muscle will bear without breaking, and this also depends on the above qualities. But the physiological strength or endurance (*i. e.* its power), when in action in the living subject, seems to depend upon the nervous influence sent to it, and the fatigue resulting from overaction to be that of the brain, and not of the muscular fibre. Thus the muscles of the heart and respiration never tire; and the muscles of flight of birds sustain an amount of fatigue which would soon tire the strong muscles of a man's leg. The action of the first is wholly, and the second partly, independent of the will, and thus does not fatigue it or its organ, the brain; and the latter, when acting without the will, as in spasms, will endure almost any amount of fatigue.

The muscles are abundantly supplied with blood-vessels, which, however, do not seem actually to enter the fibres; nor do the nerves, which are numerous, and which form loops round the fibres. The composition of a fresh voluntary (see below) muscle is about 75 per cent. of water, 15 per cent. of fibrin, and 10 per cent. of albumen, colouring matter, alcoholic extract, and salts.

Muscles have been classed as voluntary and involuntary, *i. e.* as being generally under the influence of the will only, or as being generally independent of it. The muscles of the heart, the circulatory apparatus, and the alimentary canal, are the only muscles which are always involuntary; those concerned in breathing, though generally acting without any effort of the will, are yet under its control, so that we can hold the breath, speak, &c.; lastly, the muscles, generally under the direction of the will, will act in opposition to it when under the influence of strong emotion, and other stimuli, as in laughing, sobbing, cramps, &c.

The muscles for steadying or moving the skeleton are of the voluntary order. Of course, no detailed description of them can be expected here: it may be observed, however, that they are generally in pairs; that their fibres are sometimes parallel, so that they all act in the same direction, but sometimes radiated or crossing, so as to contract in various directions; that they bring two or more bones together, sometimes causing them to approach sideways (as is the case with the muscles between the ribs), sometimes to move round their point of junction (as when one finger-bone is bent upon the other); or that they straighten the joint or extend one bone in a line with the other, of which the muscles straightening the fingers may be taken as an example: they sometimes also cause one bone to rotate, or turn round its own axis and (as in the case of one of the bones of the fore-arm) over another bone. In fact, they act so as to perform all the attitudes and movements of the body. Of course, every muscle must have one or more which have an exactly antagonistic or opposite action to itself, in order to keep the balance of the body; and this, balancing when at rest, and controlling when in action, is one of the most remarkable phenomena of animal mechanics.

Down the whole spine, neck, back, and loins, are numerous muscles for supporting and moving the head and trunk. Over the shoulder is the strong deltoid, which raises the humerus. In front of the humerus, the biceps, which bends the fore-arm on the arm, is remarkably prominent; the triceps at the back of the arm extends the fore-arm. The back and front of the fore-arm and hand are covered with muscles for bending or extending the arm, placing the hand prone or supine, and bending or extending the fingers; and what are popularly called the *leaders*, on the back of the hand, are merely the strong round tendinous ends of the muscles which open the hands. Over the chest is the pectoralis major, a muscle of large size, attached to the anterior portions of the clavicle, sternum, and ribs, and twisting under the arm-pit, of which it forms the front wall, to its insertion in the humerus. It draws the arm forwards, either upwards or downwards. The posterior wall of the arm-pit is formed by two muscles, the teres major and latissimus dorsi, both of which are attached to the humerus; the latter is a triangular flat muscle, arising from a tendinous expansion, which connects it strongly with the whole of the lower part of the back, loins, and pelvis; it drags the arm backwards and downwards, and is in several respects the antagonist of the pectoralis major. The whole of the abdominal cavity is covered in by broad thin muscles, and the back, neck, and chest are supplied with numerous others: they keep the head and body upright, or bend them forwards.

There is a muscle which is not seen, and which is not one of locomotion, but which plays a highly important part: it has been before referred to, and is called the diaphragm or midriff. It is a broad, thin, muscular and tendinous expansion, connected with the sternum, the inner surface of the six lower ribs, and the upper vertebræ of the loins. In a state of rest it is convex towards the chest, and concave towards the abdomen, so that when its fibres contract, it becomes flat, and the cavity of the chest is thereby enlarged, and that of the abdomen diminished. It is thus a muscle of inspiration, and in this respect is the antagonist of the muscles of the abdomen.

The muscles of the buttocks, thigh, calf, and foot, are some of the most powerful in the body, and bend or extend the trunk, thigh, leg, and foot in relation to each other.

It may be as well here to notice that the patella or knee-cap is imbedded in the tendon of the four-headed extensor muscle of the leg, which tendon is strongly attached to the tibia: the knee-pan and tendon slide over the pulley of the thigh-bone. The tendo Achillis is also remarkable. It is the strong tendon attached to the heel, and formed by the junction of the strong muscles of the calf, which bend the leg on the thigh, and extend the foot.

There are various muscles in the face for moving the jaws, lips, eyes, nostrils, scalp, eye-brows, and other parts: they, however, need no special allusion.

The muscles, to render their action easy and efficient, are surrounded by areolar tissue, hereafter described (see p. 26), with fat in the interstices, and bound down and together by a fibrous membrane (which is in some cases exceedingly strong), which forms sheaths for them, and, as it were, bandages them together.

§ 4. The Bodily Senses; the Voice.

According to the plan laid down, the organs of sense and that of the voice will now be briefly alluded to.

The SENSE OF TOUCH is the sensibility of the nerves of the skin to mechanical resistance, and is especially manifested in the tips of the fingers. The skin consists of two layers: an inner, called cutis, dermis, or true skin; and an outer, called the epidermis, or scarf-skin. The cutis is a tough complicated structure, composed of innumerable fibres, interlacing each other (some of which are said to be muscular), intermixed with minute blood-vessels and nerves in great quantity, and with the sweat- and oil-glands, and their ducts: its inner surface rests on cellular membrane and fat-cells, and its outer surface, on which the epidermis lies, is covered with little elevations, called papillæ, sometimes arranged in rows, in each of which is the extremity of a nerve, surrounded by blood-vessels. The epidermis is cellular in structure, the inner layers of cells being flattened, and the cells of the outer layers spherical; it is apparently pierced by innumerable holes, which are really tubes of its own substance, which it sends down into the ducts of the glands, the mouths of which are partially closed by the flattened cells of the skin of the surface, which thus act as valves. This outer skin is much harder and thicker in some parts than in others, and as its surface becomes dry, hard, and worn off, its place is taken by the layer of cells next below it, fresh cells being formed underneath. Many of these lower cells contain pigment, which gives the colour to the skin, and in the negro is black; they were formerly supposed to be a separate structure, called rete mucosum. The offices of the skin are—first, to carry innumerable nervous filaments over the whole body, so as to endow it with the sense of feeling or touch; and secondly, to carry off water and other excretions from the body, and at the same time keep the surface cool by evaporation, which two last functions it performs by the perspiratory glands, which are minute glands imbedded in the fatty layer just beneath the skin: their ducts pass spirally through it, and open on the surface. The covering of the epidermis, the unctuous secretion of the oil-glands, and the soft bedding of cellular tissue and fat, protect it, and render it soft and pliable. The sebaceous follicles (or oil-bags) also enter the roots of the hairs which are situated on many parts of the body; their secretion becomes in some parts very thick and waxy, particularly about the nose. There are other glands for different secretions in the skin of particular parts of the body: as those which secrete wax in the ears. The whole length of tubing of the sweat- and oil-ducts of the skin all over the body is enormous. Mr. Erasmus Wilson calculates the length of the perspiratory ducts, in a man of ordinary size, at 28 miles.

The SENSE OF SIGHT has for its organ the eye. The general appearance of the eye needs no description. It is a globular bag, filled chiefly with fluid or semi-fluid matter. This bag is composed of three coats: the outer, called the sclerotic, is fibrous; the next, the choroid, is a delicate structure, consisting of nerves, blood-vessels, and black pigment cells; the inner, the retina, is a delicate expansion of the filaments of the optic nerve, which enters at the back of the eye. None of these coats reach over the front of the eye. The sclerotic is there replaced by a thin, transparent, fibrous disk, called the cornea, which is again covered by the transparent membrane, the conjunctiva, which, after covering about a third of the eye, folds forward to form the inner surface of the eye-lid. The choroid ends in a fibrous and partly muscular coloured ring, called the iris, the aperture in the middle being the pupil. Behind the pupil, and suspended by little bands from the choroid, is a double convex transparent lens, of the consistency of gristle, called the crystalline lens. The chamber of the eye, in front of the lens, is occupied by a colourless watery fluid, and the chamber behind it by the vitreous humour, which is like colourless transparent melted jelly. The eye acts in the following manner: The iris contracts or expands, so as to enlarge or diminish the pupil, and admit through it more or fewer, or more or less divergent rays, according as the object gazed at is darker, brighter, remoter, or nearer: these rays are refracted by the dense humours and crystalline lens, so as to converge to a focus before they reach the back of the eye, and there form an inverted image on the expanded optic nerve (the retina), which is sensible to the rays of light. The black colouring matter is to absorb the rays, and prevent their reflection from the inner surface of the eye, which would prevent distinct vision; this indistinctness of vision occurs in albinos, who have no pigment.

The SENSE OF HEARING depends on the sensibility of the auditory nerves to the vibrations of a liquid contained in the internal ear, which vibrations are communicated from the original sounding body through the peculiar acoustic apparatus, the ear. The orifice of the visible ear is continued into a canal in the temporal bone from half an inch to a quarter of an inch in diameter, and from 1¼ to 1½ inches long, its end being perfectly closed by a membrane, called the membrane of the tympanum, which forms one of the walls of a chamber, called the tympanum, which is completely closed, except through the narrow tube called the eustachian, which communicates with the back of the nasal cavity. The other walls of the tympanum are bony. except where two small orifices, called respectively the round and the oval window, are closed by membrane. In the tympanum are four very small bones, movably joined together and acted upon by two small muscles, a limb of one bone being on the membrana tympani, and another resting on the membrane of the oval window. The oval window looks into, as it were, a chamber, still in the temporal bone, called the vestibule, and the round window into a chamber of a snail-shell or spiral-staircase shape, called the cochlea; these two chambers communicate with each other, and with a third, consisting of and called the three semicircular canals. All these chambers are lined with membrane, over which are spread the filaments of the auditory nerve, and are filled with fluid. Thus, when any vibrating body excites vibrations in the air, these set the membrana tympani vibrating, which, through the machinery of the little bones and muscles (loosening or tightening the membrane according as the sound is loud or dull, of high pitch or low pitch, near or distant), transmits the vibrations properly modified to the oval window, and so causes a movement of the fluid in the chambers of the internal ear, which movement is directly felt by the nervous expansion on the membrane lining the chambers. The tympanum and its arrangements are not positively necessary to hearing, as the pulsations of the air could no doubt be felt even by the expanded nerve directly, but they serve to render clear the character, modifications, and refinements of sound.

The SENSE OF SMELL resides in the olfactory nerves, which are distributed in a membrane spread over a large extent of surface, commencing at the nostrils and extending over the interior surfaces of several bones of the face before referred to,—the bones called "spongy bones" seeming to exist for this special purpose,—into the frontal and sphenoidal sinuses. This is really the whole mechanism of the sense of smell. Odours enter by the nostrils, and are taken cognizance of by the nerve thus expanded. The organ of smelling is also furnished with other delicate nerves of common sensation, which *feel* stimulating matters, such as snuff and ammonia, even when the olfactory nerve is cut.

The SENSE OF TASTE resides in the gustatory nerves, the extremities of whose filaments are found in the papillæ of various size, which are situated on the upper surface and especially towards the tip of the tongue. The tongue is a collection of muscles capable conjointly of moving in almost every direction, covered with a mucous membrane copiously supplied with blood-vessels. It is the organ for tasting and assisting to swallow the food, as well as one of the organs of the voice. It is of course supplied with nerves of motion, and also with those of common sensation, which latter afford a great amount of information as to the nature of substances taken into the mouth when the gustatory nerves are destroyed. It seems necessary that substances should be dissolved in the saliva or other liquid before they can be tasted; and in judging of savour, the nerves of smell cooperate with the nerves of taste.

The voice.—The organs of the voice are the lungs with the bronchi and trachea, and the larynx with its vocal ligaments and muscles: the tongue, lips, and teeth modify the voice when formed. The lungs (as far as the voice is concerned) are a collection of minute air-cells communicating with, and indeed continued into, several elastic membranous and cartilaginous tubes (the bronchi), which unite and form one tube (the trachea or wind-pipe). The lungs, with the heart and large blood-vessels, fill up the cavity of the chest, so that when the walls of the chest are compressed, the air is forced from the lungs through the wind-pipe. The wind-pipe is situated in the front of the throat, and is an elastic cylindrical tube of a uniform diameter, composed of cartilaginous rings connected by membranes, the outer one fibrous, and the internal one mucous and supplied with nerves, blood-vessels, and mucous follicles. This tube is continued and completed by the larynx, which is composed of five elastic cartilages (a projection of one of which, the pomum Adami, is very prominent in men) of irregular shape, which open by an orifice called the glottis, and are attached by the irregularly semicircular hyoid bone to the tongue. One of these cartilages, the epiglottis, forms a sort of valve, which, when the larynx is drawn upwards towards the tongue by the act of swallowing, closes the glottis and prevents the entrance of any substance into the larynx, which would otherwise be not unlikely to occur, as the pharynx and œsophagus, which form the tube leading to the stomach, are directly behind the larynx and trachea.

Within the larynx are the two elastic fibrous vocal ligaments, which meet in front and separate behind, and may be drawn more or less closely together, so as even to close the tube: the opening or slit between them is smaller than the outer one, and is called the true glottis. They are about an inch long in males when at their greatest stretch, and three quarters of an inch long when relaxed, and upon this more or less state of tension depends the pitch of the voice. The voice is produced by forcing air from the lungs through the wind-pipe, and thus setting these cords in vibration, very nearly in the same way as is the case with the tongue or reed of an accordion. In females, as the voice is higher the vocal ligaments are shorter. In ordinary speaking their tension is continually and rapidly varying; but in singing, and holding on the same note, they are kept at the same degree of tension.

§ 5. The Nervous System.

On examining the interior of the body, we find passing through it and into the various textures pearly-white cords of degrees of thickness varying from a quarter of an inch to that of the finest filament, more or less irregularly cylindrical in shape, though bulging out and flattened at various points, dividing into branches and interlacing with each other, and ultimately to be traced at their smaller extremities to some texture or organ, and at the larger extremities to either the spinal column or the skull. These are the nerves of the so-called cerebro-spinal system. There are other nerves, similar in appearance, called the nerves of the sympathetic system, which pass from, to, and between the viscera of the organic functions (such as the heart, liver, kidney, &c.), and, though sending branches to the nerves of the other system, not entering the skull or spinal canal, but assembling in numerous knots, called ganglions, which lie along the front of the whole spinal column, and are connected with two larger ganglia lying among the intestines, and also with other smaller ganglia in the head and other parts. All these nerves of both systems, when examined, are found to consist of several fibrous tubes containing a fatty albuminous fluid, and, though closely bound together, they never anastomose. The ends of the nerves in the skin and some of the organs of sense are found in papillæ (see p. 15); those in the muscles generally in loops. The large ends in the skull and spinal canal become part of the brain and spinal marrow, and most nerves have tubes which might probably be traced to both of these organs, which organs are called the centre of the system. The nerves of the cerebro-spinal system are divided into those of sensation, of motion, of the special senses, and of reflex action. The nerves of common sensation begin their function in the skin (or other organs where they are found), and those of the special senses in the organs of sense, and upon the application of proper stimuli (as mechanical contact, light, odour, sound) transmit, or as it were give notice of it to the brain, into which they go. Here the mind takes cognizance of the impression (which becomes a sensation), and dictates to the muscles such action of contraction as it thinks fit, through the nerves of voluntary motion, which begin in the brain and end in the muscular fibre. Of the whole of this operation, in which the voluntary muscles act, the mind is conscious. Among this class, though not nerves exactly of ordinary sensation or special sense, may be included nerves arising in the muscle which transmit to the brain (the cerebellum) the impression of muscular exertion ; the cerebellum, the mind being conscious, in return sending out nerves to the muscles dictating to them to sustain that exertion, thus keeping the balance of their actions. The nerves of reflex action in the same manner consist of nerves transmitting an impression from the organ to the spinal cord, it in return sending nerves to stimulate the muscles to certain actions which the original impression necessitates. But the spinal cord not being the seat of consciousness, the impression never becomes a mental sensation, and the mind takes no cognizance of the operation, which is performed through the *involuntary* muscles. One or two examples of reflex action were given when the involuntary muscles were spoken of; but these nerves are also called into action by moral emotions and the passions : thus weariness, shame, and fear, cause the muscles of the jaw, those of the muscular coats of the arteries, and those of the scalp, to contract, so that we yawn, blush, or the hair of the head stands on end.

The CENTRAL ORGANS of the cerebro-spinal system of nerves consist of the cerebrum, the cerebellum, the ganglions of special sense, and the medulla oblongata, all within the skull, and the medulla spinalis within the spinal canal. The first three constitute the brain.

The BRAIN is composed of two kinds of substances,—the one white and opaque, the other reddish-grey, and both of a gelatinous consistence. The interior of the cerebrum, and the exterior of the cerebellum and spinal cord, consist of the white matter which, when examined by the microscope, is found to be composed of tubular fibres similar to the trunks of the nerves. The grey or cortical matter forms the outside of the cerebrum and the interior of the cerebellum and spinal cord : it consists of a minute network of blood-vessels surrounding the extremities of the fibres of the white substance, and transparent cellular membrane, containing in its interstices granular matter and cellular nuclei, which send out fine prolongations. The precise functions of these separate substances have not been ascertained; but by some it is supposed that the white is the real nerve-matter, while the cortical affords the nutriment for it. How the nerves entering or leaving the brain mix with its substance, has not been ascertained; but most nerves are supposed to communicate with both substances. The brain has numerous convolutions on the surface, and in form is not unlike a walnut within its shell: it is protected by three membranes: it is divided, but not completely, longitudinally, into two portions, called hemispheres, and has several sinuses or chambers within it. The cerebrum occupies the whole anterior and upper part of the skull, and consists of three portions or lobes. The cerebellum occupies the lower and back part of the head: when cut, its inner grey substance presents a beautiful branching, tree-like appearance. The ganglia of special sense occupy the central anterior part of the base of the brain. The medulla oblongata is merely the prolongation of the spinal marrow into the brain at the back of its base. The brain has no sensation whatever, and may be cut or wounded without causing the slightest pain. Some of the functions of the different parts of the brain were referred to when speaking of the nerves. In addition to these are the manifestations of intelligence, memory, the pure reason, sentiments, and passions: in fact, it is the organ of the mind. The medulla oblongata is connected with the nerves of respiration and swallowing.

The SPINAL CORD, like the brain, is protected by three membranes. The spinal nerves have two roots, one in its anterior and the other in its posterior portion. The anterior roots are for bringing motive influence from the cord, the posterior ones carrying impressions to it.

The CHIEF NERVES it is impossible here even to name: it must suffice, therefore, to say, that from the brain arise nine pair of nerves, which divide into several branches, and supply the muscles of the face, neck, the organs of sense, &c., all of these nerves, though rising really or apparently in the brain, receiving filaments from the spinal cord also.

The nerves from the cervical vertebræ form a network of nerves, called the brachial plexus, whence proceed the median, ulnar, radial, and other nerves of the arm. From the dorsal vertebræ proceed between the ribs the intercostal nerves; from the lumbar vertebræ the lumbar plexus and the nerves supplying the front of the leg; and from the sacral vertebræ the sacral plexus, the great sciatic, and its branches the tibial and fibular, to the front of the leg. The cord ends in a bundle of nerves called the cauda equina or horse-tail.

§ 6. General View of Self-Nutrition.

The preceding anatomical and physiological description, though a very cursory one, may enable us to understand sufficiently well the structure and functions of all that is necessary to make man a perfect thinking, conscious, feeling, locomotive animal. First, the bony framework contains and sustains the other parts, and by the help of the ligaments, interarticular cartilages, membranes, and lubricating fluids, becomes an inert machine, ready to be turned into a locomotive and prehensile machine by the help of (secondly) the muscles, with their tendinous ends and the fibrous sheaths and bandages holding them firmly and compactly together. Thirdly, the nerves of sensation carry the sensations of various kinds made by the external world to the centre of instinctive action—the spinal cord—and the centre of conscious perception—the brain—from which two organs issue again the nerves carrying motive influence to the muscles. Fourthly, we have the brain—the instrument of the mind. Lastly, we have the whole completely covered in and rendered less liable to injury by the skin, which, besides, is the seat of the nerves of touch and of other functions to be noticed hereafter. But man is not born in this perfect state—he has to *grow* up to it; nor could he without additional powers continue in it, for the external changes as to temperature, moisture, and other physical influences, would soon injure his perfection, even if the very action of his mind, senses, and powers of motion, did not wear out his various organs, and consequently disturb their functions. To counteract these effects, he is supplied with organs for carrying off the old waste matters, and with others for supplying new material in their place to the various structures. The former are called the organs of excretion, of which the kidneys and bladder, for carrying off the old matters in the shape of urine, are an example; the latter are the organs of nutrition; and of these the stomach, alimentary canal, and absorbent system, for receiving and changing the food into materials fit for forming the different structures of the body, are instances. The temperature of the body is kept up by means of the respiratory apparatus, the heart, and lungs, and prevented from getting too high by the evaporation through the skin. Now, the nutritive matters are not carried immediately to the different structures; but after being duly prepared they enter into, and indeed form that most important of fluids, the blood, which also carries the heat-causing elements obtained in the lungs to the different parts of the body. It is the blood, then, propelled by the power of the heart through tubes called arteries, which bears nutrition and warmth to all parts of the body, and having parted with these, returns through another set of tubes, the veins, to the heart again. Before describing the organs through which these operations are to be performed, the chief of the fluids, the blood, and some of the principal tissues, must be noticed.

§ 7. The Blood.

The blood is by far the most important fluid, as in it are contained all the ingredients of the others, as well as of the tissues. In the living body it is a thick fluid a little heavier than water, of the temperature of 100°, of a red colour (bright scarlet in the arteries, and deep purple in the veins), and when examined by the microscope it is found to consist of a colourless fluid, called liquor sanguinis (or by surgeons, coagulable lymph), with numerous round delicate bags or bladders, called blood-globules or blood-disks, floating in it. The globules are of two kinds—one kind colourless, containing fluid, and about one-four-thousandth of an inch in diameter; the other rather larger, of a red colour (which gives the blood its colour), and containing fluid having dissolved in it peroxide of iron in the arteries and carbonate of iron in the veins. These globules allow fluids and gases to pass through their membranous walls, and if the blood be diluted they swell and burst, from the diluting fluid passing into them; and if the blood be thickened, the fluid in the globules passes out of them, and they shrink. In the lungs (see Lungs, page 30) the carbonic acid gas contained in the carbonate of iron of the venous blood passes out of the globules, and oxygen passes in: in the other structures of the body the reverse operation takes place, and thus carbon is carried away from the body and thrown off in the lungs, and oxygen obtained from the air through the lungs is carried to different parts of the body. When the blood is drawn from the body it separates into a solid clot, called the crassamentum, which in a state of health retains the red globules, and a transparent liquid called serum. The crassamentum is found to consist of a network of fibres of a substance which has received the name of fibrin, which, chemically speaking, is nearly the same as albumen, and differs from it chiefly in its property of *spontaneous* coagulation. The serum is principally albumen dissolved in water (in the proportion of 15 parts of water to 1 of albumen), with a small amount of animal, fatty, and saline matter. It will, therefore, coagulate by heat. The blood, then, may be said to consist of water and albumen, either in its simple state or in its animalised state as fibrin, besides a few saline, fatty, and animal matters, and iron, carbonic acid, and oxygen in their free state. The colourless blood-globules are supposed to be endowed with the power of thus *vitalising* the albumen into fibrin. The primary main element, then, of the blood, as blood, is albumen, and this consists *chemically* of the elements oxygen, hydrogen, carbon, and nitrogen.

§ 8. The Tissues

Of the body are all made up of albumen in its state of fibrin, or of gelatine, having various matters deposited in them, such as oily matter in fat, and mineral substances in the bones. Now gelatine differs from albumen only in containing a very little more oxygen and nitrogen and a little less carbon. Therefore, although we do not know that gelatin *as such* exists in the blood, yet we see that the blood contains all the elements of it. All these elements also exist in the articles necessary for food (see pages 57 and 58), and it is from the food, through the alimentary apparatus, that the blood receives them.

The tissues formed of fibrin are called fibrous tissues. In structure they are either simply a more or less dense network of consolidated fibrin, or they consist of cells.

Of the SIMPLE FIBROUS TISSUES, there is one diffused through every part of the body. It is the *areolar* tissue, frequently but erroneously called cellular membrane. It is a loose network of very minute fibres, sometimes adhering so as to form sheets, and having a serous fluid in its interstices. It passes between the nerves, blood-vessels, muscles, &c., binding them loosely together, but enabling them to move over each other without violence. It easily decays and is rapidly renewed, and is therefore copiously supplied with blood-vessels. The *serous* membranes consist of these fibres interwoven into a continuous membrane, from one surface of which serous fluid is exhaled. The *ligaments*, for binding the bones together, are a still firmer fibrous tissue, as are the *tendons* and sheaths of the muscles (see pp. 12 and 15), and the strong *elastic yellow* tissue, of which the walls of the arteries consist (see p. 31). All these tissues discharge functions simply mechanical, and not vital; and being of the lowest class, the tissues of the higher classes, such as the nervous and muscular, sometimes *degenerate* into them. What would appear to be the lowest form of tissue, seems not even to consist of fibres, but to be simply a consolidated film of fibrin. It is called the basement or primary membrane ; it is easily permeated by fluid, and is found between the outer and the true skin, and lines the tubes and cavities which are continued from the skin (such as the alimentary canal), and all the serous membranes.

The CELLULAR TISSUES generally consist of a basement membrane covered by a layer (called the epithelium) of very minute bags or vesicles, filled with colourless fluid. These cells have in many instances a very short term of existence: how they are renewed is a problem that has not been solved, but it is by some supposed that they, as well as the blood-globules, contain minute germs of new cells, which, when the parent cell bursts, become fully developed. When the surface of the epithelium is in an exposed situation the outer cells become flattened and dry up, and either fall off, as in the case of the epidermis (see page 15), or become compacted into a hardened mass, as in the case of the hair and nails, and pushed forward by the new cells formed below. The *mucous* membranes consist of a basement layer and epithelium, the cells of which absorb (and they have the power of selecting what they require to absorb), through the arteries and basement membrane, a tenacious fluid from the blood; the cells then burst, and pour out the mucus on to the surface of the membranes. This process of selecting matters from the blood and pouring them out is called *secretion*. The nose, air-passages, lungs, &c., are lined with mucous membrane. The stomach and intestines are also lined with it, but as they have to absorb from the food nutritious matters which are ultimately to be poured into the blood, the membrane is there disposed in a more complex manner. It is sometimes arranged in folds, and sometimes in minute projections called *villi*, and minute pits called *follicles*. The epithelium cells of the follicles secrete the mucus, as above described, while those at the points of the villi fall off during digestion, thus leaving it in contact with the nutritious fluids of the food. On the other side of the basement membrane are other small cells, and near them the ends of the absorbent vessels (see page 43). The nutritive fluids then pass through the basement membrane into these lower cells, which burst and pour out their contents, which are taken up by the absorbent vessels. The secretive action of the different glandular organs seems discharged by the means of cells in this manner. The *adipose or fatty* tissue consists of separate cells lying unconnected in the meshes of the areolar tissue, and filled with oily matter taken up from the blood and stored in them until taken back by the blood-vessels, when wanted. *Cartilage*, or gristle, is another cellular tissue. Simple cartilage consists of a number of cells scattered through a mass of gelatin. No blood-vessels enter it, but ramify on the surface; and from these the nutritious fluid is absorbed into the cells of the surface, and by them transmitted to the remoter ones. In *fibro-cartilages* the space between the cells is occupied by ligamentous fibres.

The other fluids of the body—such as the chyle, bile, &c., and the other tissues, such as the bony, nervous, muscular, &c.—are elsewhere described. Sufficient has been now said to enable us to understand what follows.

§ 9. THE CAVITIES AND REGIONS

Into which the body is divided, and in which the different organs are situated, should be noticed before the anatomy of the organs is entered upon.

The cavity of the SKULL contains the brain within its hard unyielding walls. On this sufficient has been said already (see page 5).

The THORAX, or chest (see page 7), is closed above by the organs passing into the neck, and at the back, front, and sides, by the elastic, bony, cartilaginous, and muscular walls formed by the vertebral column, the ribs with their cartilages, the intercostal and other small muscles, and the sternum; and below by the half-muscular and half-tendinous elastic wall, the diaphragm, which separates it from the cavity of the abdomen. The contents of the thorax are the heart (with its large vessels), the lungs, the wind-pipe, and the œsophagus. The two latter, with some large blood-vessels, pass into the neck, and the œsophagus is also continued into the stomach in the abdominal cavity.

The ABDOMINAL CAVITY is bounded above by the diaphragm, in front and at the sides by the abdominal muscles, behind by muscles and the vertebral column, while it communicates below with the pelvic cavity, with which, indeed, it really forms one cavity. In the abdominal cavity are the stomach, intestines, liver, spleen, pancreas, kidneys, and some large blood-vessels.

The PELVIC CAVITY is formed, at the sides, back, and front, by the pelvis; and is partially closed below by membrane, muscles, and skin. In it are situated the bladder, the lower part of the large intestines, and, in women, the organs of generation.

For convenience, the surface of the abdomen is mapped out into REGIONS. Immediately below the breast-bone is the epigastric region, with the left and right hypochondriac regions at its sides; below these the umbilical in the middle, with the upper parts of the iliac at the sides, and the lumbar behind; and below these again the hypogastric in the centre, with the lower part of the iliac at the sides; below the hypogastric, just above the organs of generation, where the bones of the pelvis join in front, is the pubic region, or pubes; and on either side of it, in the hollow between the thigh and the abdomen, the groin, or inguinal region.

The mechanism of the viscera will now be described in order, beginning with the thoracic viscera; these are the heart, the central organ of the circulation (with its system of veins and arteries), and the lungs, the organs of respiration.

§ 10. The Heart

Is a hollow muscle, or rather a collection of muscles, enclosing cavities. It is a little larger than the loosely closed fist. Its broad upper end is situated very slightly to the left side of the middle of the breast-bone, where it is suspended, as it were, by the large blood-vessels entering or issuing from this end of it. Its lower end is somewhat pointed, and inclines forwards and downwards and to the left side, striking against the chest between the fifth and sixth ribs, between two and three inches to the left of the central line. It is covered by a serous membrane, called the pericardium, which is folded back so as to form a loose bag, secreting a lubricating fluid, within which it can freely work (see p. 35). The heart is divided vertically into two distinct halves, each of which consists of a smaller, thinner-walled upper chamber, called an auricle, and a lower, larger, stronger one, called a ventricle. Each auricle communicates with the ventricle of the same side by an opening furnished with membranous folds attached to the walls of the ventricle, acting as valves, which allow the blood to be pressed from the auricle into the ventricle, when the former contracts and the latter opens, but not allowing it to be pressed back when the ventricle contracts. The valve on the right side is called the tricuspid, on the left the mitral. From each ventricle issues a large tube. They are the commencement of arteries, and are furnished with little pocket-like folds, called the semilunar valves, which allow blood to be pressed into them by the contraction of the ventricles, but not to be drawn back when they open or dilate again. The artery from the left ventricle is called the aorta, and through it and its numerous branches the left ventricle propels the blood to every part of the body. The artery of the right ventricle is the pulmonary artery, and through it and its branches the right ventricle forces the blood into the air-cells of the lungs. Into the right auricle enter two large tubes; they are the veins (called venæ cavæ) which receive from innumerable small tributaries blood coming from all parts of the body: into the left auricle enter the pulmonary veins, which by means of their tributaries bring the blood from all parts of the lungs.

§ 11. THE LUNGS

Are two spongy masses, filling up the cavity of the thorax, suspended from, and being a continuation of, the trachea and bronchial tubes; they are covered by a serous membrane, called the pleura, which is folded back, lining the whole cavity of the chest, and allowing the lungs to play freely within it. The lungs are made up of innumerable and infinitely minute membranous cells, which are the ultimate sub-divisions of the bronchial tubes and their smaller divisions, so that the single tube, the trachea, expands and divides into the whole of them; all these cells and tubes are lined with the mucous membrane continued from the throat, and covered with numerous little hair-like prolongations, which are constantly vibrating, so as to clear the membrane from the mucus. Upon the thin walls of the air-cells ramify the invisibly small tubes which are, at the same time, the ends of the minute sub-divisions of the pulmonary artery, and the beginnings of the small tributary tubes which unite so as to form the pulmonary veins. Thus the lungs consist of an assemblage of infinitely small air-cells ending in the wind-pipe, and infinitely minute blood-tubes, beginning in the pulmonary artery and ending in the pulmonary veins; the blood in the tubes and the air in the cells being separated only by a membrane so thin and porous as to allow of the passage of air and gases through it (see p. 33). Anything which tends to increase the cavity of the thorax, either by raising the ribs, or by enlarging it below, must cause air to flow into the cells, so as to fill up the increased space and prevent a vacuum. The intercostal muscles, and, when the arms are fixed, the pectoral muscles, and others, effect inspiration by the former method, and the diaphragm contracting and becoming flat, and therefore ceasing to bulge into the thorax, effects it by the latter means. Everything, on the other hand, which diminishes the cavity of the thorax, either by pressing down the ribs or by pushing up the diaphragm, compresses the lungs, and forces the air out of them. Thus the mere weight of the ribs and elasticity of the cartilages would cause expiration in the first way; while the abdominal muscles, at the same time, pull down the ribs, and press the abdominal viscera against the diaphragm, and up towards the chest, forcing the air out in both ways. The elasticity of the cartilages and the contraction of the diaphragm are the ordinary causes of expiration and inspiration, but in cases of forcible breathing the other means are used.

§ 12. The Blood-vessels,

So often already referred to, are cylindrical tubes, through which the blood flows. They are of two kinds—arteries and veins.

The ARTERIES are tough, elastic, fibrous, and partly muscular tubes arising from the ventricles, and carrying the blood forced into them by the ventricles, and through them partly by the ventricles and partly by their own contractile power: in the case of the arteries beginning in the aorta and arising in the left ventricle, propelling the blood to all parts of the body; in the case of the arteries beginning in the pulmonary artery and arising in the right ventricle, propelling it into the air-cells of the lungs. The arteries arise from the constant branching of the larger trunks into smaller and smaller ones, until they are almost or quite invisible, and are called capillaries. The area of the transverse section of any artery is the same as that of all its branches together, so that the pressure of the blood upon the arterial walls is everywhere the same. The arteries are generally deeply seated, so as to be out of the way of injury; but where they are not, as at the wrist, the pulsation caused by the contraction of the ventricles may be felt, and when they are wounded the blood comes from them in jets, owing to the same cause.

The VEINS are more numerous, larger, less elastic, and situated more on the surface, than the arteries. The blood having been forced into the capillary arteries, these gradually join together, and form larger and larger tubes, into which the blood continues flowing, until they unite in large trunks, finally entering the auricles; the right auricle receiving through the two venæ cavæ the blood which has come from all parts of the body, and the left auricle through the pulmonary veins that which has come from the capillaries ramifying on the walls of the air-vessels of the lungs. Now the force of the heart is nearly exhausted by the time the blood has reached the capillaries, and as it therefore moves more slowly the area of the veins becomes much larger than that of the arteries, so that the pressure on their walls is less, and therefore their coats are less strong. Again, as the current towards the heart is weak, it might happen from the auricles contracting, or from other obstructing causes, that the blood would flow back again: this is prevented by a set of little membranous pockets being placed along the whole course of the veins, which act as valves, preventing the backward course of the blood. It was the discovery of these veins which suggested to Harvey the fact of the circulation of the blood, which was unknown until his day.

As to the names and distribution of the arteries and veins, it must suffice, in so slight a sketch, to say that the main artery, the aorta, rises from the left ventricle by an arch turning to the left at the lower part of the neck, whence arise two large trunks, giving off to their respective sides the carotids, which pass up the neck and supply branches to the head, brain, &c. (the severance of which is the cause of death when the throat is cut), and the subclavian, which pass under the clavicles and dividing into the axillary and brachial and smaller branches, supply the upper extremities. The aorta descends along close to the spinal column, giving off branches to supply the abdominal viscera (see pp. 35-50), and divides about the level of the hips into the two iliac arteries: the iliac artery becomes the femoral artery in the thigh, and divides into the two tibial and other branches in the leg. As to the veins, those from the head unite into the jugular veins in the neck, and those from the arms into the subclavian veins, and the jugulars and subclavians unite into the superior vena cava; those from the lower extremities, the trunk, and the abdominal viscera (which latter pass into the liver by the vena portæ, and issue from it through the hepatic vein), unite into the inferior vena cava. It should be remarked that the dark impure blood is generally called venous blood, and the bright pure blood, arterial; and it is true that the arteries and veins of the larger circulation do respectively contain pure and impure blood, but in the lesser or pulmonary circulation this is not the case, as the pulmonary veins contain the purest blood in the body.

§ 13. The Circulation and Respiration.

The blood, as we have seen, is made up of all matters necessary—first, to the formation of the different structures of the body; and secondly, to keeping up their temperature. The first it receives through the stomach and alimentary apparatus from the food (in a manner to be hereafter noticed), and leaves behind it the old waste matters, to be carried off by the excretory apparatus. The latter (oxygen) it absorbs in the lungs, giving up in exchange carbonic acid, which (or at any rate one of its elements, carbon) it has taken up from all parts of the body. It is clear, therefore, that the blood must continually travel from the sources of supply to the places of deposit. This travelling is called its circulation. Let us suppose the left ventricle filled with blood of a bright vermilion, containing all the pure elements of nutrition, and saturated with oxygen. The ventricle contracts, the blood is forced to leave it by the great artery, the aorta (as it is prevented by the valves from doing so by the only other outlet, viz. that into the left auricle), and to go through all the arterial branches into the capillaries, there to deposit the specific nutriment for each structure, and take up carbonic acid in exchange for oxygen; it then returns through the veins of a deep purple colour, loaded with carbonic acid, and, until it reaches the venæ cavæ, also drained of its nutritious qualities, which it here again receives (see p. 43), and finally re-enters the heart by the right auricle in its dark and deoxygenised condition. The right auricle now contracts, and, as the valves in the veins prevent its regurgitating in them to any large amount, it escapes by the only other outlet into the right ventricle: the right ventricle contracts,—the blood within it is prevented by the valves from flowing back into the right auricle, and is therefore propelled through the pulmonary artery into the capillaries in the air-vessels of the lungs; the lungs at the same time expand and draw in air; oxygen passes through (see p. 30) the membranous walls of the air-cells into the blood, and carbonic acid in the same manner passes out of the blood into the air-cells, and from them to the external air; and the blood, thus re-oxygenised, and again bright scarlet, flows through the pulmonary veins into the left auricle, which, like the right auricle, contracts, and sends the blood into the left ventricle. This circulation from the heart through the lungs and back again is called the lesser circulation. The expanding of the lungs and drawing in of the air is called the inspiration. The muscles of the heart, and the muscular coats of the arteries, are supplied with nerves coming solely from the spinal cord; the muscular motion which causes the circulation is therefore entirely free from the control of the will. These nerves respond to those which go *from* the circulatory apparatus to the nervous centres, which seem to be excited by the stimulus of the oxygen contained in the blood, as well as by some mental emotions—as fear, anger, &c. It should be noticed, that every muscle of the body when in action presses upon the veins, and so helps to propel the blood towards the heart; this being one of the reasons why exercise promotes the circulation. The nerves going to the respiratory apparatus have their origin in the spinal cord, the medulla oblongata, and brain, but chiefly in the former. The respiratory function, therefore, is chiefly of the reflex character and independent of the will,—but not entirely; or it may be caused by the stimulus of the carbonic acid of the venous blood acting upon the filaments of nerves in the lungs going to the nervous centres, by the stimulus of cold affecting the nerves going from the surface of the body, by certain mental emotions, and also by the will. The number of respirations, and the quantity of air inspired, vary very much according to the age, sex, and state of the health; but in a healthy adult, under ordinary circumstances, the number of respirations is from 15 to 20 in a minute, and the amount of air about 20 cubic inches in each inspiration. The proportion of carbonic acid gas in the expired air is about one-thirtieth. It should be noticed, too, that not only carbonic acid gas, but watery vapour in large quantities, and perhaps other vapours and gases, pass out of the blood through the lungs, and that watery vapour, nitrogen, and even poisonous gases, also are absorbed into the blood through the lungs.

§ 14. THE ABDOMINAL VISCERA GENERALLY, AND PERITONEUM.

The ABDOMINAL VISCERA are concerned in the nutrition of the body: thus they receive and prepare the food, extract from it its nutritious parts, which they pour into the blood, and carry off its unnutritious and unrequired parts and the waste parts of the body.

The PERITONEUM is a serous membrane by which all these viscera are covered and attached to the walls of the cavity, which is also lined with it. It may be as well here once for all to describe the nature and arrangements of the peritoneum, which are similar in all serous membranes. Let us suppose a completely closed bag (like a balloon emptied of gas) two or three times as large as some cavity (such as the abdominal). Suppose its inside to be well oiled. Suppose its outside to be covered with glue, so that it may be folded more or less completely over various objects, such as pipes, solid bodies, and bags (like the viscera of the abdomen), and firmly adhere to their surface, the rest of its external surface being glued to the walls of the (abdominal or other) cavity; what is over sufficient protruding in folds (whose surfaces next to each other of course stick together) into the interior of the bag. The different objects, folds, and walls of the cavity, will, if rubbed against each other, move with facility, as it is really only parts of the oily surfaces of the inside of the bag which come in contact. The closed bag is the serous membrane, and the oil the serum which exudes from its inner surface. It will be seen, therefore, that when we cut through the muscular walls of the abdomen and their peritoneal covering, we look upon the inside of the serous bag. The thorax and lungs are in the same manner covered by the pleura, and the heart by the pericardium.

§ 15. The Alimentary Canal

Has by far its larger portions (the stomach and intestines) in the abdominal cavity, but its commencement is in the mouth, and it will be convenient now to describe it. At the back of the mouth we observe a soft smooth curtain of flesh hanging down: this is called the veil of the soft palate: its central part, which hangs down lower, is pointed and muscular, and is called the uvula; the parts on either side of it being called the arches of the palate. These arches form the opening into the pharynx, the upper end of the œsophagus, the tube leading to the stomach. The pharnyx is continuous with the back of the nostrils, and through the glottis it communicates with the larynx, and the Eustachian tubes (see p. 17) open into it behind the soft palate. The ducts of the salivary glands, the parotids, the sub-maxillary, and sub-lingual, open also into the cheek, opposite the upper jaw gums, by the sides of the frænum of the tongue, and at various points under the tongue. The pharnyx is composed of a muscular coat, whose fibres run in various directions, and a mucous coat, which is continuous with that of the nostrils, cheeks, lips, wind-pipe, lungs, and œsophagus. The œsophagus is the continuation of the pharynx into the chest, and, through the diaphragm, into the stomach. It is rather less than an inch in diameter, and is loosely connected to the surrounding parts. It passes pretty nearly in the middle line behind the heart and lungs, and next the vertebræ, turning to the left as it issues from the diaphragm. It has a muscular coat (the muscles being involuntary), a loose spongy coat having several longitudinal folds, and an epidermis.

The STOMACH is a large membranous bag, having an inner mucous coat, which is covered with inhalant and exhalant vessels and mucus, a muscular coat, and the peritoneal coat or covering: it is shaped like a pear slightly bent, its larger curved surface being inclined forwards and downwards: it is placed across the abdomen under the diaphragm, its larger end occupying the left hypochondrium, having the spleen behind it, its middle going across the spine, the pancreas being behind it, and its lower and smaller end (the stalk-end of the pear, as it were) having the liver above it and separating it from the diaphragm. The œsophagus enters in the upper part about one-third from its left and larger end, and the smaller end, through what is called the pyloric orifice, is continued into the intestinal canal, where there is a fold in its mucous lining which acts as a kind of valve. It is supplied with nerves and copiously with blood-vessels, and has lymphatic vessels (see p. 43) distributed throughout its whole surface. From its larger curved surface there hangs over the whole of the intestines, one of those loose folds of the peritoneum before described, having cellular tissue and fat between its two surfaces: it is called the omentum.

The INTESTINAL CANAL is a continuous tube about six times the length of the body; the first three quarters of the tube are called the small intestines, and the last quarter the large intestines. The intestinal canal commences at the pyloric orifice of the stomach under the name of the duodenum, which bends first backwards, then downwards, and then across the body, and is but partially covered by the peritoneum; it then takes successively the names of jejunum and ileum, and is convoluted upon itself in all directions, forming a large mass occupying the chief of the whole middle and lower regions of the abdomen. The whole of this canal receives a coating from the peritoneum, which is then folded upon itself, forming a broad double sheet (called the mesentery) which acts as a ligament, connecting the intestines with the back part of the abdomen, and keeping them (though not without a certain freedom of motion) in their place. The small intestines have a muscular coat consisting of circular fibres, sometimes not going completely round, and, in the case of the jejunum and ileum, some longitudinal interrupted fibres, and a mucous coat which is arranged in a number of circular folds, called valvulæ conniventes, and fringe-like prominences. At the end of the second portion of the duodenum, obliquely between its coats, the ductus communis choledochus bearing the bile from the liver, and the duct of the pancreas, enter. The whole of the mucous surface is covered with little projections called villi, in which originate the lacteals (see p. 43), which then pass on between the two folds of the mesentery. The end of the ileum enters the left side of the large intestine in the right iliac region by an opening guarded by a sort of valve formed by folds of the peritoneum, binding it down. One part of the large intestine descends from this opening for about two inches, but contracts suddenly, and ends in a little long blind bag, called the appendix vermiformis: this portion of the gut is called the cæcum; the continuing portion ascends, under the name of the colon, on the right side as high as the liver, then crosses the abdomen below the stomach under the great omentum, to which it gives attachment, and sends off behind a fold of the peritoneum, called the transverse mesocolon, by which it is kept in its place, and which separates the stomach, liver, spleen, and pancreas, in the upper abdominal regions, from the small intestines in the lower: it then passes downwards on the left side behind the spleen and small intestines, and before the left kidney, and after performing a double bend, ends just at the top of the sacrum, and is continued into the rectum, the last part of the intestinal canal, which accommodates itself to the pelvic cavity, and ceasing to be covered by the peritoneum, ends in the anus. The size of the tube of the large intestines is much greater than that of the small ones; the cæcum, the largest of all, being three times the size of the ileum. The cæcum and colon are formed into large irregular bulgings by three longitudinal muscular bands on their coats, and their mucous surfaces contain but few or no villi and valvulæ conniventes: in other respects they resemble the small intestines. The rectum has no irregular bulgings, its muscular coat is stronger than that of the rest of the canal, and ends in a strong circular muscle called the sphincter of the anus.

§ 16. The Pancreas (or Sweet-Bread)

Is a greyish-white viscus, narrow and about seven inches long, placed behind the lower part of the stomach. It is a gland (see p. 46) which secretes a fluid not very unlike the saliva, which it pours by a duct into the lower end of the duodenum.

§ 17. The Spleen (or Milt)

Is a flat rounded mass, of a livid colour, situated behind the large end of the stomach, and plentifully supplied with blood-vessels, the veins being peculiar from communicating directly with its arteries, and being without valves; they unite into a trunk, which goes to form the vena portæ. Its lymphatics unite with those of the liver. The use of this organ is quite unknown, but it is believed in some undiscovered manner to form a reservoir of blood, which the distended stomach procures from it by pressure during digestion.

§ 18. The Liver

Is a large, brown, deep-coloured viscus, from two to five pounds in weight, situated directly beneath the diaphragm in the right hypochondrium, its upper surface being smooth and convex, and its under surface concave with slight depressions shaped to receive the right kidney, the colon, and the stomach, on which it rests. It is divided by fissures into several separate masses called lobes, and has several ligaments formed by folds of the peritoneum, by which it is covered: it has also a fibrous coat. Its substance is compact, but not firm, being easily torn. It seems to be made up of numerous little glandular masses of the size of a pin's head, of the minute branches of the hepatic artery and portal vein which ramify between or upon these little masses, of the capillary vessels which ultimately unite and terminate in the vena cava, and of the minute vessels which form the commencements of the hepatic ducts, and which unite and join the cystic duct from the gall-bladder, and with it form the ductus communis choledochus, which carries the bile into the lower part of the duodenum. About the middle of the front edge of the lower side of the liver is a pear-shaped bag, the gall-bladder, with its thick end towards the surface of the body. It is partially covered by the peritoneum, and has besides a fibrous coat and a mucous coat: at its smaller end or neck it terminates in the cystic duct, the junction, however, having five or six imperfect valves, which obstruct, but do not prevent, the regurgitation of the bile from the hepatic duct. The liver, whatever its structure (and about this there is a difference of opinion), is, as to its function, a gland for secreting the bile from the venous blood; the gall-bladder being a sort of storehouse where the bile becomes more viscid and acrid.

§ 19. The Kidneys

Are two dark, red-brown coloured bodies, of the shape of a kidney-bean, weighing about five ounces, imbedded in fat, situated one on each side of the vertebral column opposite the last two dorsal and first two lumbar vertebræ (the left being higher than the right), with their concave surfaces or sides towards each other. Into this concave side are seen entering by one and sometimes two branches the renal arteries, which arise directly from the aorta; and issuing from it the renal veins, which empty themselves into the vena cava inferior; and behind them the tubes called ureters, which are the excretory ducts for conveying away the excretion of the kidney (the urine) to the bladder. The kidneys have their anterior surfaces more or less covered by the peritoneum, and are more or less connected with the adjacent viscera. The proper coat of the kidney is membranous and double, and completely covers every portion of it. The substance of the kidney consists of an external or cortical, and an internal or tubular portion: the cortical is deep brown-red,—it is strongly attached to the membranous coat, and forms the whole of the outer portion, and dips down between the divisions of the tubular portion. It is easily torn, and consists of an intricate network of extremely minute twisted arteries, veins, and other tubes. The tubular portion consists of several conical bundles of minute straight tubes proceeding from the cortical substance, opening into membranous caps called calices, which unite into the pelvis or basin of the ureter—the ureter, indeed, being a membranous tube continuous with them—and all being lined by mucous membrane. The ureters open into the bladder.

The BLADDER is called one of the pelvic viscera; but, besides the fact of the pelvic and abdominal cavities being really one cavity, the bladder when full forces its way into the real abdominal cavity. It is a bag composed of an internal mucous coat, over this a muscular coat, over these a complete cellular coat derived from the pelvic fascia, and over this a partial covering from the peritoneum. The peritoneal and cellular coats are folded and connected with the surrounding parts in such a manner as to act as ligaments, keeping the bladder in position: when empty, the bladder falls into folds, except a triangular space in the bottom, from the front of which issues a tube continuous with the bladder, called the urethra, by which the urine is ejected, and into the two back angles of the triangle the two ureters enter obliquely between the coats of the bladder: by this arrangement, when the bladder contracts the coats are pressed closely together, and the urine is prevented from passing back into the ureters.

The urethra is the tube continuous with the bladder, through which the urine is ejected; in males it runs through the entire length of the penis (see p. 51). Its mucous lining is continuous with that of the bladder, ureters, and calices of the kidney. In its course the ducts conveying the semen from the testicles, and those of the prostate gland and Cowper's glands, open into it: the prostate gland, which does not exist in the female, surrounds the neck of the bladder and commencement of the urethra,—it is of about the size of a walnut, and secretes a thick whitish fluid; Cowper's glands are situated one on each side of the urethra before the prostate, and are of about the size of a pea: their secretion is similar to that of the prostate.

§ 20. The Process of Digestion

May be now described, or rather the whole process of reducing and assimilating the food. The food is first divided, torn, and ground, according to its nature, into small pieces by mastication: this action of the jaws and the stimulus of the contact of the food causes the salivary glands to pour out their contents (saliva), and the mixing of this with the food is called insalivation. The saliva is chiefly water, but contains one-hundredth part of solid matter, partly animal, but chiefly common salt.

The food is then carried by the action of the tongue and other voluntary muscles to the back of the throat, but directly it touches the pharynx it is acted upon by muscles quite free from the control of the will, as they are supplied with nerves from the spinal cord only, which respond to the stimulus of the contact of the food. It is carried by these muscles into and down the pharynx, passing over the glottis or aperture in the larynx, which is immediately closed by the epiglottis, and thence into the œsophagus. This action of swallowing is called deglutition; and that it is purely involuntary is shown by its taking place when the brain is paralysed, and when the back part of the throat is touched by a feather.

The food is thus carried on to the stomach, where by its contact it excites the follicles to pour out their contents, the gastric juice, just in sufficient quantity to reduce the alimentary matter which the body demands into a thick pulpy or semi-fluid mass. If, therefore, there be no aliment in the substance taken into the stomach, or if it be nutritious but already fluid, the gastric juice is not poured out: this latter is the reason why nutritious soups, &c. are often difficult of digestion. Hunger seems to be the feeling of distension of the blood-vessels of the stomach, towards which the blood is determined when the body needs nourishment, and this distension does not cease until the gastric fluid is poured out. The walls of the stomach have a peculiar movement by which the food is turned over and over, so that the whole of its surface is equally acted upon; and the food in a uniform pulpy mass is carried on to the pyloric orifice of the stomach. The gastric juice is very like the saliva, but it contains sufficient muriatic and acetic acid to make it distinctly acid, as well as some albuminous matter which is called pepsin; it possesses the property of dissolving alimentary matter submitted to it at the temperature of 100°. The acids have merely a chemical action, but the pepsin is supposed to prevent putrefaction and cause fermentation. The food thus reduced into a pulpy semi-fluid state is called chyme, and the process of reduction chymification.

The chyme is now carried forward by the action of the muscular fibres of the stomach through the pylorus, the valves of which allow no solids, except with extreme difficulty, to pass into the duodenum, where the bile and pancreatic juice are poured into it. The bile contains a crystallisable fatty substance called cholesterine (consisting chiefly of hydrogen and carbon), some soda, and some colouring matter. It decomposes the chyme, neutralising its acid properties, and indeed making it alkaline, and causing the mixture to separate into three parts,—one dark-coloured, containing the colouring matter and undigested food which passes off through the bowels; another whey-like, which contains the albuminous matter of the food; and the third creamy, containing the fatty matters of the food and bile: the two latter or nutritious portions form the chyle. The pancreatic juice is supposed to be endowed with the property of dissolving the fatty portions of the food. The mixture of the bile and chyme is carried on through the intestinal tube, over the whole surface of which, but gradually decreasing in number, are numerous villi, each supplied with many small filaments of blood-vessels, having in their midst a small absorbent vessel, at the mouth of which are small loose cells (see p. 27), which are the immediate organs for absorbing the chyle and delivering it to the absorbent vessels. The chyme being thus deprived of its nutritious portion, the chyle, the remaining coloured and indigestible mass is still carried forward and passes out through the rectum in the shape of fæces; the sedimentary and colouring matter of the bile being supposed to stimulate the muscular coats of the bowels to action.

§ 21. The Absorbents

Are of two kinds,—first, the lacteals, which are the delicate transparent tubes supplied with valves like the veins, and whose mouths receive the chyle in the manner just described. They unite into larger and larger trunks, and pass on between the folds of the mesentery, where they are twisted together in various knots, improperly called glands, with blood-vessels circulating among them: they then pass on and unite in one main trunk, about the eighth of an inch in diameter, called the thoracic duct, which receives also the second kind of absorbent vessels, the lymphatics; these are similar in structure to the lacteals, and bring dead but still useful matter, in the form of a fluid called lymph, from all parts of the body; the thoroughly useless matter being carried out of the body by the excreting organs. The lymphatics in their course are also, like the lacteals, formed into knots called glands, situated in the groins, neck, arm-pits, &c. The thoracic duct passes up by the aorta, and empties itself into the veins where the left jugular and subclavian meet, some of the lymphatics emptying themselves into the corresponding point on the right side.

These two classes of vessels—lacteals and lymphatics—are the proper absorbents; but the veins are the vessels which really absorb fluids from the stomach, and, indeed, from the lungs and skin: the lymphatics do, however, occasionally absorb substances from the skin (though not directly intended to do so), and when the substances are of an irritating nature, the inflamed lymphatics may be traced as red lines running along the limbs, and the glands become swollen and hardened. The absorption of dead material from the body to be again used is not so paradoxical as it appears, when we recollect that a great portion of the food itself is really dead animal matter. The chyle is of a milky appearance, and contains 90 parts of water and 10 of solid matter, consisting equally of albumen, fatty matters, and salines. When taken from the lacteals, before they reach the mesenteric glands, it contains numerous oil-globules and some other floating cells like the colourless blood-globules. After it has passed through the mesenteric glands the number of the latter cells has much increased, and it has the quality of coagulating spontaneously to a certain extent. As it approaches the thoracic duct, these qualities gradually increase; when also less oily matter and more albumen and fibrin are found, and it has almost the character of colourless blood. The conversion of albumen into vitalised albumen, or fibrin, is supposed to be owing partly to the floating cells and partly to the walls of the lacteals: hence the utility of the convolutions of the lacteals in the mesenteric glands, as the chyle is thus longer acted upon.

§ 22. SANGUIFICATION, OR THE MANUFACTURE OF BLOOD,

Is therefore dependent, firstly, upon absorption of the fluids by the veins; secondly, upon the preparation of the solids of the food by the digestive organs, and their absorption and ultimate delivery, in the form of chyle, into the blood-vessels by the lacteals; and thirdly, upon the absorption, from all parts of the body, and re-delivery into the blood, of dead matters by the lymphatics. These processes only account for the manufacture of blood so far as relates to its being supplied with matters necessary for the nutrition of the body; but it has, farther, to obtain in the lungs the material (viz. oxygen) for heating the body—a process that will be hereafter described (see p. 50), and it has also to be kept pure from the products of the decomposition of the several tissues of the body which it takes up in the course of its circulation. This latter function is performed by the excreting organs.

§ 23. Secretion and Excretion.

The tissues, we have seen, are composed of the elements oxygen, carbon, hydrogen, and nitrogen, in fixed proportions, under the forms of albumen, fibrin, gelatin, and fat. These same elements, therefore, and in the same proportions, must exist in the several excretions, with the addition of such foreign or hurtful matters as are not necessary to the formation of the tissues; it being recollected also that superabundant matters, which, though introduced into the system, are not used, must also be excreted in the same manner. Thus we find carbon and oxygen thrown off by the lungs, which may be so far regarded as excreting organs, though the oxygen absorbed through them probably never forms part of the tissues, but only serves the purpose of heating them. Oxygen and hydrogen, again, are excreted from the lungs and the skin (see pp. 30 and 16), either in the form of insensible vapour, or, when the air is dry and cold, as visible vapour, and, if it be hot and damp, as sweat from the skin. The amount of fluid excreted by these channels is said to be three or four pounds in the twenty-four hours, and it carries off with it common salt and certain other matters which require removal from the body. Carbon, we have seen, is excreted by the liver in the shape of bile, passing off by the rectum, some of it being again received into the blood in the cream of the chyle and deposited in the fat-cells. None of the excretions as yet mentioned contain nitrogen. The kidneys are the organs specially destined to get rid of it, which they do in the urine. This excretion consists of a large quantity of water holding in solution a crystalline substance, urea, which contains the four elements above mentioned, the proportion of nitrogen being much greater than in any of the substances forming the tissues. It also contains urate of ammonia, a soluble salt composed of uric (or lithic) acid and ammonia, the uric acid sometimes being found in an insoluble state (see p. 77), and other foreign matters. All these excreting organs have been previously described. It should be observed how their actions may balance one another. Thus, if carbon is required to be got rid of, and the body kept warm, it will be done by the lungs; if, on the contrary, the body is required to be cooled, or if (as in the case of the child in the womb) the lungs do not excrete it, this office is performed by the liver. If water is to be got rid of, and the body cooled, the skin performs this function; if the body be already cool, the kidneys excrete urine. Again, we see how disease may ensue from there being too much of any of these elements taken up into the system, or from the organs which should excrete them becoming inactive. Thus, from too much carbonised food, carbon either remains in the blood, and we become bilious, or it is deposited as fat, or the liver is overworked and becomes disordered. Too much nitrogenised food causes urea to be left in the blood, which acts as a narcotic poison, or it is deposited as gravel or stone, or the kidneys become diseased from over-action.

Secretion differs from excretion in this, that the latter is the process of separating matters from the blood which already exist in it, and which, if they were allowed to remain, would become poisons; while the former is the actual formation of peculiar fluids from the blood which do not already exist in it (under these forms), and which are intended to serve some purpose in the animal economy. Thus mucus is secreted from the mucous follicles, not that it may be got rid of, but that it may protect and keep moist the membranes. Serum enables the different portions of the serous membranes to move easily over each other. The greasy and waxy secretions of the sebaceous follicles of the skin and of the ears keep these parts soft and flexible. The fatty deposits form a soft cushion for the various structures. The saliva, the pancreatic and gastric juices, act upon the food in the manner already described. The tears from the lachrymal glands wash away irritating matters from the eye, or relieve the overcharged vessels. The milk from the mammary glands nourishes the infant. The bile is in one sense a secretion, and in another an excretion: as a secretion it acts as a chemical separater of the digestible from the indigestible portions of the chyme: as an excretion it consists of the useless carbon and colouring matter. Those of the secretions which are again taken into the blood are by some called recretions: such are the saliva, and pancreatic and gastric juices. The bile is therefore a recretion also, as it restores to the blood, in the form of fat, part of what it had previously taken from it.

Structure of the secreting and excreting organs.—The organs themselves are called glands (although this term has been otherwise improperly used: see p. 43), and their structure is in all instances essentially the same. The ultimate secreting organ is a very minute vesicle (or little bladder) which is endowed with the power of absorbing through its walls the matters constituting the particular secretion or excretion. These vesicles contain within themselves the germs of others, which, when the parent vesicle bursts and delivers up its contents (the secretion or excretion), survive and again go through the same course. The simplest examples, indeed, of absorbing vesicles are the fat-cells, which are perfectly distinct bodies scattered through areolar tissue, thus constituting the adipose tissue or fat. These cells, however, do not decay, but merely act as storehouses of the fatty matter, to be given up again when required to the blood-vessels. The simplest arrangement of the real secreting cells is when they are disposed in layers on a flat surface (see Epithelium, p. 26). The next simplest is, when they are disposed in follicles or little pits, or in prolonged tubes (see p. 27). A more complex structure is when numerous cells are arranged in many follicles which are continued into several tubes, ultimately ending in one or more tubes, and pouring out their contents through them on to the secreting surface: and the most complex of all is the gland, which consists of many conglomerations of the structure last described, ultimately ending in one or more larger ducts for discharging the secretion. Of this kind are the salivary glands and the pancreas. In the kidney the vesicles or cells are arranged in the uriniferous tubes before described. The important difference in all these organs consists in the particular selective powers of the cells for absorbing their peculiar secretion; the arrangement matters little, for the same secretion is elaborated in different animals by different arrangements. But what is curious is, that there is sometimes a change of function or selection between the different organs in the same animal. Thus in man the skin, stomach, and breasts have excreted urine, and milk has been secreted by the skin, salivary glands, and kidneys. Before leaving the subject it should be stated, that by some the brain is considered as a collection of glands which secrete the fluids contained in the nerve-tubes. A few lines must also be given to the structure of the mammary gland.

The BREASTS are composed of the common integuments, adipose tissue, and the lacteal glands and vessels. In the centre of each breast is the nipple, a conical eminence in the skin, of a rosy tint, and surrounded by a circle of a pink colour in virgins, and reddish-brown in those who have suckled: this is called the areola, and on it are several small prominences, caused by the sebaceous glands which are situated beneath it, and discharge through several small ducts opening on the surface an unctuous fluid to protect the nipple. On the wrinkled skin of the nipple are the orifices of the lactiferous ducts, surrounded by exceedingly minute hairs.

The mammary gland for secreting the milk is of the complex arrangement last described; several exceedingly minute vesicles being collected into little bundles of the size of a pin's head; these little bundles again uniting into lobules, and then again into lobes, connected together by areolar tissue. Each little bundle of vesicles has its minute tubular duct or radicle; these unite in the lobules into larger ducts, and in the lobes into the main ducts. The whole lobe is somewhat like a bunch of grapes, the stalks being supposed to be hollow. The ducts from the several lobes do not unite, but open into several small sinuses or hollows near the base of the nipple, from which sinuses several unconnected ducts pass up its centre, and opening upon its surface there discharge the milk. The areolar tissue enveloping the lobes is generally filled with fat. The breasts are of course supplied with nerves, arteries, and veins; the lymphatics are very numerous, and go to the axillary glands.

§ 24. Formation of the Tissues.

So far we have seen how the blood has taken up from the food, through the alimentary apparatus and absorbents, matter for the nutrition of the body; how it has taken up from the air, through the lungs, matter for heating it; how it has taken up from all the structures waste matters through the lymphatics; and how it has conveyed to the secreting and excreting organs materials from which they respectively form useful products or throw off hurtful ones. But we have not seen how the nutritive materials are applied to nourish the tissues, nor how the heating materials are applied to warm them: and of these processes we can never know much. It would appear, however, that the tissues of organs having functions simply mechanical (see p. 26) are formed by the coagulation of the fibrin or gelatin of the liquor sanguinis into a fibrous or simply granular structure, which afterwards is perforated, or its surface covered, by blood-vessels, the coats of which the serum transudes, thus continually furnishing nutrition to this tissue.

The tissues of the organs necessary to life, on the contrary, are composed of cells which, as before described, contain the germs of other cells. The parent cell selects and absorbs from the blood what is necessary to form the particular structure, and, ultimately dying, its contents are carried off by the lymphatics; the germ becomes a cell, and the process is repeated. In the organs of animal life, the muscles and nerves, the tissues are no longer made up of separate cells, as the tissue must be a continuous one, in order that the organs may act as a whole; they are therefore made up of tubes originally, indeed, composed of cells laid end to end, the partition walls breaking down. The tubes draw their respective materials from the liquor sanguinis through the coats of the capillaries, in the same way as the cells. Thus all the structures are nourished by absorbing through the tubes or cells forming their tissue, and through the coats of the blood-vessels, whatever is necessary to them, and no structure is nourished by the blood being directly poured into it; new structures, however, are formed by that means. Thus to repair the effect of wounds in general this liquor sanguinis or coagulable lymph is poured out; the fibrin coagulating, cells appear; these coalesce and form vessels, the blood circulates through them, and the structure ultimately assumes the character of the parts in connection with it. Sometimes the surrounding parts grow until the wound is closed.

§ 25. ANIMAL HEAT

Seems to depend upon the chemical fact, that carbonic acid gas has a less affinity for heat than oxygen. One substance is said to have more affinity for heat than another, when it requires more heat to raise it to the same temperature as the other, as judged of by the senses or a thermometer, just as blotting-paper may be said to have a greater affinity for moisture than ivory, as its surface becomes less wet with the same quantity of water. Water has a less affinity for heat than spirits of wine; therefore when we mix a pint of water at 62° with a pint of spirits at 62°, the water, and therefore the mixture, cannot absorb so much heat without showing it, and the mixture is much hotter than either of its constituents. If we put carbon for spirits of wine, and oxygen for water, the same thing takes place, when the coloured blood-globule comes to the tissues charged with iron and two proportions of oxygen (protoxide of iron); half of the oxygen is converted into carbonic acid gas by absorbing carbon, and this having less affinity for heat than the oxygen becomes hot (like the spirits and water), and warms the neighbouring tissues. The globule in the lungs changes this carbonic acid for oxygen, and again returns to the tissues, and the process is repeated.

§ 26. LIFE.

We have seen tnat all parts of the body, separately considered, are subject to constant death and removal, their places being supplied by new matter. Also several parts remain alive and grow after the body is really dead. Thus the heart of cold-blooded animals may be made to beat long after its removal from the body; and the hair grows for a short time after death. In fainting, and during the hybernation of animals, the circulation may cease for a time. Life then would seem to be not merely the holding together of several unconnected living structures, but the harmonious co-operation of all the structures and organs to maintain each other and the whole body in efficient action. All these depend upon the circulation of the blood, and when it permanently ceases death takes place. Where the vital power primarily resides it would be fruitless to inquire; but the blood in the living body is undoubtedly alive, and anything found in it is immediately subjected to other powers than the mechanical, chemical, electric, and other powers of external nature, and is in fact within the realm of animal vital force

§ 27. ORGANS AND FUNCTION OF REPRODUCTION.

These organs and their function, although of the highest interest and importance, can scarcely be more than touched upon in so slight a sketch as the present. The principal FEMALE ORGAN is the uterus or womb, a hollow pear-shaped structure, flattened before and behind, about six inches long, situated with the broad end upwards, between the bladder and the rectum, underneath the small intestines. Its narrower part or neck is continuous with the vagina, the canal which passes between the urethra and rectum and ends in the external parts of generation. From its upper part proceed—one on each side—the two fallopian tubes, which end in the ovaries, two egg-shaped bodies containing the germs of the ova, or eggs. From the arterial capillaries at the broad end or base of the uterus a red fluid, somewhat resembling blood, but not coagulating, is secreted, and discharged through the vagina every three weeks or a month from the age of puberty until about the 45th year. It is called the menses, menstrual discharge, or catamenia; and the secreting process is called menstruation.

The principal MALE ORGANS of generation are the testicles and penis. The testicles are two glandular bodies contained in the scrotum, and hanging from the lower part of the abdomen by the spermatic cords, which consist of the nerves, blood-vessels, lymphatics, &c. The testicles secrete the semen or fructifying fluid, which is ultimately poured into the urethra. The penis is the cylindrical structure containing the urethra, and chiefly composed of what is called erectile tissue. Its end, which somewhat resembles an acorn, is thence called the glans, and the loose cap of skin which more or less covers it, the prepuce. The penis is the male conducting organ through which the semen prepased by the testicles is conveyed to the womb.

During the congress of the sexes, one of the prolific ova becomes endowed with life, and descends through the fallopian tube into the uterus. The impregnated ovum contains the embryo, and as this increases in size, the womb enlarges in proportion. As the ovum comes down from the ovary it is enveloped in two membranes: the inner one, smooth and transparent, is named the amnion, and from its inner surface is secreted the amniotic fluid, in which the fœtus floats, so as to admit of its freedom of motion and preserve it from pressure. The outer membrane, the chorion, is shaggy or covered with villi, and becomes adherent to some part of the womb, forming with the deciduous membrane (before mentioned) the placenta, or after-birth. The placenta is a flat fleshy mass, about six inches broad, consisting chiefly of blood-vessels, to which the fœtus is attached by the umbilical cord or navel-string, and through which it is supplied with blood from the mother.

CHAP. II.—CAUSES AND SIGNS OF DISEASE.

§ 1. Predisposing Causes.

Having now seen the organs and their functions in a healthy state, we come to consider the causes which tend to change that state. But, before considering those which immediately affect it, and which are called "exciting causes," it will be well to examine into what are called the "predisposing causes," or such states of the body as, though not actually diseased, render it more liable to become subject to disease in general, or some disease in particular, when the exciting cause is present. These may depend on hereditary dispositions—age, sex, and personal peculiarities and temperaments.

Hereditary states of body, or those transmitted from parents to children, it requires but little observation or reflection to perceive, may be as naturally expected as the very evident resemblances which individuals bear to their immediate parents, or even remote ancestors, in feature and external form, and even mental and moral peculiarities. In the family pictures of some distinguished families we constantly see an ancestor of many generations back the exact likeness of his descendant of to-day ; and it is natural enough to suppose that there would be points of resemblance, though not immediately affecting the senses, in the vital organs or functions. As a peculiarity in the form of the lip, nose, or eye, runs through a family for generations, so a disposition to blindness or deafness is equally remarkable. Gout, scrofulous affections, insanity, and other disorders, are equally and in the same manner hereditary. Although this hereditary *tendency* exists, yet it does not follow that the disease itself should ever appear, for the exciting cause may be altogether absent, or attention and care may counteract it; still less is it meant that a person with an hereditary tendency to disease should be born already diseased, although of course, strictly speaking, a state of body having a morbid tendency cannot be called actually healthy. This hereditary taint may also exist in the child although it has not existed in the families of either of its parents, for they may be badly matched, and thus their offspring have a morbid state of body. A perfectly sound soil, and a perfectly healthy plant not suited to each other, will produce unhealthy fruit. Also, a child may be born without a disposition to any specific disease, yet in a weakly state of body, rendering it susceptible to the attack of any exciting cause, from ill-assorted parents, or their being in a bad state of health at the time of the child's conception.

AGE must manifestly make a great difference in the susceptibility of a person to peculiar disorders. Thus in infancy, while the functions of assimilation and digestion are so active, and the observant faculties so constantly stimulated, we must expect disorders of the stomach, bowels, and brain, to be called forth by exciting causes which would be harmless at any other age. Accordingly, diarrhœa, worms, diseases of the absorbent glands, convulsions, and water on the brain, are frequent during infancy. As the child advances towards the age of puberty, the blood is not so strongly determined towards the brain and assimilating organs, but more strongly to the generative organs. When puberty is complete, and thus all the functions, both of nutrition and reproduction, established, the body advances to its complete and perfect growth, the circulation is active about the chest, and we should expect to find inflammatory affections and pulmonary consumption. From the period of manhood or womanhood, during middle age, or until from 40 to 45 in the female, and from 50 to 55 in the male, the general tendency is towards inflammatory diseases in the earlier years, gradually changing to a tendency to congestion in the different organs; so that towards the latter years we may look for hæmorrhages, dropsy, apoplexy, &c. &c. From this period until old age, disease arising from the gradually diminishing power of all the organs may be expected. We accordingly meet with all the immediate evidences of such loss,—as impaired vision and hearing, general insensibility, muscular weakness, diminished powers of digestion and secretion, stone in the bladder, gouty deposits, and degenerations of structure.

SEX.—Besides the obvious differences in the special organs and functions of the male and female, there is the general distinction that males are more liable to inflammatory affections, females to nervous disorders. This, indeed, is the principal difference which affects the treatment of disease in the two sexes; and this is what was naturally to be expected from the difference between their healthy states. Of the male, *tone* is the characteristic; of the female, *sensibility*. Menstruation, child-bearing and suckling, are of course frequently accompanied by disorders which cannot affect the male, as amenorrhœa, menorrhagia, puerperal fever, phlegmasia dolens, milk fever, mammary abscess, &c.

PERSONAL PECULIARITIES.—Some persons are affected in an extraordinary manner by particular kinds of food or medicine, or particular states of the wind, the weather, or the moon, &c. Shell-fish or water-cresses produce eruptions in some, the smell of a melon causes others to faint; but what we are more immediately concerned with is the peculiar effect of medicines on certain individuals. Opium immediately salivates some, while mercury will not; others cannot take a grain of mercury or opium, and others again seem unaffected by them.

TEMPERAMENT.—Besides these *emphatically personal* peculiarities, there are certain distinct states of bodily constitution, called temperaments, under one or more of which all individuals may be classed. Five pure temperaments are usually spoken of—the Sanguine, the Phlegmatic, the Nervous, the Bilious, the Melancholic. The characteristics of the first are caused by a great vivacity of the circulation. The complexion is fair and bright-coloured, the eyes blue, the hair bright, with a tendency to red, the air animated, the disposition quick and unstable, the pulse full and quick.

The Phlegmatic is characterised by a general laxity and torpidity of the whole system; the muscles are soft, the skin full, but puffy and flabby; the complexion, hair, and eyes pale or colourless; the joints large, the manners and movements languid, and the mind unexcitable.

The Nervous temperament consists in an active state of the nervous system and brain: the muscles are slender, the lips thin, the eyes bright, the pulse quick but not full, and the intellect quick and brilliant.

The Bilious temperament is shown by strength and rigidity of the whole system, strongly marked features, with dark complexion, hair, and eyes; the pulse is strong, but not quick; the manner decided; and the mind tenacious of purpose.

The Melancholic is like the bilious temperament more fully developed in all that denotes depth and persistence, but there is less energy or activity of mind and body.

These temperaments seldom occur in a pure form. Most people must be classed under two at least,—as the "nervous-sanguine;" or sometimes under three,—as the "nervous-bilious-sanguine." Persons of a sanguine temperament are more liable to acute inflammation than others; the nervous to mental and nervous affections; the phlegmatico-sanguine to phthisis; the phlegmatic to scrofula; the phlegmatico-bilious to gout; the bilious to hypochondria and disorders of the digestive organs.

§ 2. EXCITING CAUSES.

CONTAGION.—Omitting mechanical injuries and poisons, the most obvious exciting cause of disease is contagion; it is the communication by contact of a poison generated by morbid animal secretion, which, when taken into the body, has the power of producing a similar morbid action. Small-pox and syphilis are communicated in this way; the latter always, the former being also capable of communication through the air or by infection. The contact may be not only with the diseased person, but with the clothes; but the term in its strict sense is confined to the communication of disease by substantial contact, and not through the air, although the poison itself may be known to be material.

Infection is the communication of disease through the medium of the air. The infecting agents are either the specific poisons emanating from the breath or bodies of persons suffering under particular diseases,—as small-pox, scarlet-fever, hooping-cough; or the miasm resulting from putrid vegetable or animal matter.

Atmospheric states, or Climate.—The air, besides acting as the medium for communicating poisons, may itself be the immediate cause of disease from its various conditions as to temperature, dryness, weight, or electric condition. As regards its temperature, it would be perhaps better to say its effect upon the temperature of the body; for air only a few degrees cooler than the surface of the body, but which passes over it in a rapid current, will have a much greater cooling effect on the body than motionless air of a much lower temperature. Diseases of the lungs and air-passages, as also scorbutic diseases, are more common in cold climates, and fever in warm climates; but the latter probably arises in a great measure from the fact that vegetable putrefaction, and consequently miasmata, are promoted by heat, particularly when accompanied by moisture.

Moist air would seem to act on the body in the following manner. When the air is hot, and at the same time moist, the large blood-vessels are stimulated to increased action by the heat, which also relaxes the pores of the skin, and thus perspiration, or excretion by the skin, is promoted. But the air, being already charged with moisture, will not receive the moist vapour from the body, and the effect is a turgid state of the vessels, and a feeling of fulness and weight. Thus, in what is called "muggy weather," although the atmosphere is really lighter than at other times, it is generally complained of being "heavy." In cold damp weather, on the contrary, the cold checks the perspiration, and the air makes no *demand* for the moisture. Dry cold weather has exactly the opposite effect to moist hot weather, the cold having a tendency to check evaporation from the skin, while the dryness of air demands moisture: most people, therefore, experience a cold and starved feeling, which we should expect from a demand being made upon the body, and at the same time the power of supplying that demand being checked. In cold moist weather there is a balance between the absence of demand by the air and the check from the cold on the supply from the body.

The weight of the air must obviously have a very sensible effect. The increased pressure on all parts of the body may be felt in the diving bell; and in extremely lofty places the diminished weight of the air, and consequent diminished support to all the bloodvessels and other parts, is shown by the hæmorrhage which affects those who are unused to such situations.

The diseases caused by climate are, indeed, not often possible to be avoided by the mass of individuals. As a general rule, if we live in low marshy districts we must expect agues and low fevers; if we live in a constant east wind we may expect decayed teeth; if in the midst of the dust, smoke, noxious vapours, unoxidised air, and dark alleys of towns, we may look for a generally feeble state of health. These things, though seldom to be avoided or cured by the individual, may, however, be greatly modified by the State, by means of draining, planting, cleaning, &c., and other measures which constitute the science of Hygiène, or public health. But we now come to matters in which most individuals can help themselves,—namely, faults as to food, sleep, and general habits of life.

FOOD.—Food must first of all, as we have seen under the head Digestion, contain the substances fitted for manufacturing the bones, muscles, nerves, and other structures of the body, and secondly, the materials which are intended to supply heat, as has been shown under the heads Respiration and Animal Heat. All these substances are contained in the blood, and are supplied to it through the stomach, and in no other way, unless we except the oxygen of the air, which is absorbed by the blood in the lungs. Again: in order to be taken into the blood through the stomach and digestive apparatus, it must be in such a *mechanical condition*, or such a state of consistency, as to be capable of being "reduced" by the stomach into a pulpy mass (by mixture with the animal fluids), that it may be in the next place absorbed or "assimilated."

The chief material out of which the body is composed is, as we have seen, fibrin or albumen, the main element of which is nitrogen; there are, besides, various salts and earths, in comparatively small quantities, necessary for the structure of the bones and other parts. The substance required for heating the body is carbon; water also is required. We may therefore say that nitrogen, carbon, oxygen, and hydrogen, with a few salts and earths, are the necessary elements of our food. The carbon and nitrogen, however, must be taken into the body in an organised state, —*i. e.* we must seek them in the vegetable or animal kingdom. The oxygen and hydrogen must be taken combined with the others, or in the form of water. The salts and earths may be taken either combined with the others or at once from the mineral kingdom.

We need not argue the question of whether man can live upon a vegetable diet alone or an animal diet alone, for not only would science lead us to conclude the possibility of his doing so, but the fact shows us that he does. The Hindoos and the Greenlanders are instances, the former living on vegetable, the latter on animal food. But the almost equally universal desire for and use of a mixed diet would convince us that it was that best fitted for man, did not chemistry and the structure of the teeth and digestive apparatus point out the probability of the fact.

Omitting the salts required, the nitrogenous elements of food may be found in the albumen of the vegetable world, (as in the gluten of wheat and the legumen of peas), in the fibrin of the flesh of animals, and in the gelatine of their bones, skin, gristle, &c. The non-nitrogenous constituents of food are either "saccharine,"—such as sugar, starch, and gum, each of which, in nearly equal proportion, contains oxygen, hydrogen, and carbon; or "oleaginous,"—such as the fat of animals, and the oily and waxy matters found in the cells of plants. The oleaginous constituents, like the saccharine, also contain only oxygen, hydrogen, and carbon; but the proportion of carbon is far greater, so that they require much more oxygen to be breathed to consume them, and are thus better adapted for creating heat by combustion. The mineral constituents of food are chiefly common salt, necessary for the gastric juice and the bile, lime for the bones, phosphorus and sulphur for the fibrin, phosphorus also forming with the lime phosphate of lime, or bone-earth, and entering into the composition of the nerves. Iron is found in the blood. Lime exists in most animal and vegetable substances, to a very great extent in wheat-flour, and in most of the water which we drink. Milk and eggs both contain phosphorus, sulphur, iron, and salt. Plants and grasses contain much phosphate of lime, and but little salt; so that herbivorous animals in a state of nature generally seek salt soils, or, when domesticated, have it supplied to them.

It will be tolerably clear from what has been said that a man who feeds chiefly on fibrin, with a very small portion of carbon,—as the lean of meat, for instance,—will have more than enough for nutrition, and too little for respiration and heat; while he who eats only vegetables (not including the grains and leguminous order) will have far too little for his nutrition. Thus, if potatoes or rice be the only food, they must be eaten in vast quantities with much salt; and he who eats animal food should keep the balance by consuming a due quantity of non-azotised food, in which carbon predominates. Wheat contains all the elements of food in nearly the required proportions, except water and salt, which are added to it in bread; so that bread seems well adapted, upon the whole, as far as its composition goes, to be, what it has been long considered, the staff of life; and, if occasionally accompanied by some fresh fruit, milk, and butter or cheese, is perhaps not an inaccurate representation of what the food of man ought to be.

But man is not a mere chemical laboratory, he requires change in the quality of his food; he requires, now and then, the addition of stimulants or condiments to give a pleasant excitement to the digestive apparatus, and he is endowed with a sense of flavour; so that, were all the elements necessary for nutrition and warmth contained in his food, he would still, under the various exigencies and changes of life and the wants of his nature, desire variety of kind and flavour in food. An unsophisticated stomach would tell him instinctively when his food required changing in quantity or quality; but to the sophisticated and pampered, or starved and savage stomach, these appetites, which were meant for his enjoyment and perfect nutrition, become the sources of a vast number of diseases; for it does not seem difficult to imagine how eating too much or too little, too nitrogenated or un-nitrogenated, too mixed or too unvaried, too highly-flavoured or too insipid a food, or with too nice or too negligent a regard, may lead to disorder.

But food, besides being thus fitted for nutrition by containing all the necessary elements in due proportion, must also be digestible. For this purpose it must not be in a putrefying state, as in such case a new arrangement of the elements sets in, which opposes the action of the vital forces; nor must it be too dense, so that the digestive juices cannot pervade it; nor too fluid, so as to relax the coats of the stomach, and allow the watery parts to be too quickly absorbed, and thus fatigue the digestive apparatus before it attacks the solid and nutritious parts; nor must it be too highly concentrated, so as to over-exert the part of the stomach on which it lies, leaving the rest idle, and being at the same time insufficient to satisfy one of the causes of hunger,—viz. the desire for distension. To suit it, then, for all these purposes, cooking is necessary,—an art almost unknown in this country to the mass of the people.

It is not proposed here to dilate upon such a subject; but the following,—one maxim and four rules,—may be useful.

Maxim. Cookery is meant to break up the fibres, and render food tender, and not to decompose it or deprive it of any of its elements.

Rule. To boil meat, put the meat in hard water boiling rapidly. By this means the surface is covered with coagulated albumen, which prevents the escape of the juices. After a little time reduce the temperature of the water to 200°, and keep it so until the meat is done.

Rule 2. In making soup and broth, on the contrary, use the softest water you can get, put the meat in cold, and never let the water quite reach the boiling point.

Rule 3. In baking meat, cover the meat with a paste; this prevents the escape or decomposition of the fat

Rule 4. Vegetables should be simmered in hard water.

After the food is cooked it has still to be prepared in the mouth by thoroughly dividing it with the teeth, or chewing it, so as to mix it well with the saliva. Sometimes, from its hardness, or from defective teeth, or from its un-porous or doughy nature, it is impossible to mix it with the saliva; at others, from being thoroughly disintegrated (as sausages are), it does not suggest the necessity of chewing: in either case it is therefore not sufficiently prepared when it enters the stomach for the efficient action of the gastric juice.

We next come to the fluids taken into the stomach: we say fluids, because we are now simply considering the way in which they enter the system, and their action as diluents. Pure water is certainly the natural and best diluent which can be taken, and, when really pure, it has no chemical action; its effect, besides that of diluting the food and blood, being to cool the body, promote the decomposition of the tissues, and increase the excretions, particularly the perspiration, or rather, as to the last, to supply one of the means of doing so; for if the drink be cold and the air cold, so as to chill the surface of the body, the fluid will pass off only through the kidneys, and will not increase the perspiration unless exercise be taken. The chief evil to be avoided in drinking water is not to drink it when we are much heated or greatly fatigued, or about to be passively exposed to cold; to drink slowly, and not too much, while eating, as it dilutes, and so far renders ineffective, the salivary and gastric juices, and thus impairs digestion. It should be drunk while fresh, and not after it has been standing long in impure situations, as it rapidly absorbs noxious gases, and in summer contains millions of dead animalcules, which, though innoxious while living, are not so harmless when in a state of putrefaction. Hard water usually contains bicarbonate and sulphate of lime, the former of which may generally be removed and the water rendered clear by mixing half a pint of lime-water with a gallon of water and filtering. The latter earth, however, seems to be the chief cause of the hardness.

As to fermented liquors, the less taken of them, as a general rule, the better. In a healthy and natural life they would be simply hurtful, though doubtless useful as medicines; but in the artificial life of great towns they may and do combat the depressing effect by supplying a stimulus. It is only, however, taking one poison to drive out another. It would appear that alcoholic stimulants produce an immediate action on the brain (before being absorbed) through the nerves of the stomach, and when absorbed into the system, their physiological action is to dilate the capillary vessels, and to allow an accumulation of blood in them. Hence they cause pressure on the brain, and the physical and mental semi-paralysis, called drunkenness, and hence congestions of the liver and apoplexy. Chemically they are hydro-carbons, and, therefore, have a great heating power: and no doubt, when the use of ardent spirits is accompanied with hard exercise and a great consumption of oxygen, the balance may be kept, and they may do little harm, at least so far as congestion is concerned. But the evil tendency of their stimulating effect upon the nerves can never be wholly avoided; for where there is unnatural excitement, unnatural depression must follow. In the fagged and jaded life of the working people of towns, however, as has been said above, the moderate use of sound beer and pure wine is, perhaps, upon the whole, not very hurtful. Each man can, however, if he will, judge best for himself. Let him try how total abstinence agrees with him (living otherwise moderately), and then, if he honestly finds it does not suit him, let him again have recourse to some pure stimulant (*never* taking spirits except as medicine), and keep his consumption always just below what he imagines to be strictly necessary for him. It may be as well to add, however, that it has been amply shown by the American and other ships, where the abstinence principle is carried out, that the healthy man can do more without intoxicating drink than with it.

Here, too, may be added a few words on the use of tobacco. Smoking has a sedative effect following on a stimulating one. By those who smoke much the stimulating effect (which is violent in those unused to it) is hardly perceived, but the relaxation and repose of the nervous system which follow have partially the effect of sleep. In fact, in however minute a degree, it paralyses the nervous system, and thus, when all the physical sensations which disturb the thinker are rendered less troublesome, he is really more capable of intense thought; not, be it particularly observed, that his intellectual power is increased (for it is really diminished), but that the distracting claims of his animal nature are less. So we find, generally, that when it is necessary that his thinking and observant powers should be used together he is less effective than his non-smoking neighbours. Smoking determines the circulation from the skin to the kidneys, that is to say it diminishes the perspiration (thus impairing the action of the skin, and diminishing the floridness of the complexion), and unnaturally increases the excretion of the urine. It has, therefore, a tendency to produce disorder of the kidneys. It has a debilitating effect on the muscular and nervous systems, a tendency to cause flabbiness in the muscles of the heart, and, not so unfrequently as is imagined, causes paralysis. It also impairs the digestion, and many smokers complain of pains in the cerebellum and region of the kidneys, arising no doubt from impaired energy of the whole of the spinal nerves.

Of the adulterations of food there is no room in a work of this kind to say much. The prevention of such adulteration ought to be, and in some respects is, a part of public hygiène, a subject which, however important and interesting, can have no place here. Enough has now been said, perhaps, to suggest to the thoughtful what errors to avoid in food. If he does not avoid them, then such neglect becomes one of the most fruitful sources of nervousness, apoplexy, indigestion, gout, gravel, &c.; which will be treated of under their several heads.

Exercise.—The body is kept in a healthy state by continued renewal, the old parts being carried away and new matter deposited; carbon and water leave the body through the lungs, water through the skin; and other matters, solid and fluid, through the bowels and kidneys. Exercise of the muscles in the open air promotes this renewal in every way. The moment we alternately contract and relax a muscle, the blood is mechanically drawn into it, and propelled from it,—that is to say, the rapidity of the circulation is increased; this increases all the work which that circulation does. The quicker play of the lungs draws in more oxygen and sends out more carbonic acid; the perspiration is increased, as also the demand for food. Even exercise of the lungs alone, as in singing, has this effect to a certain extent, and we have all seen the perspiring brow of the orator or singer, as if from great physical exertion—which indeed it is. It becomes then perfectly clear that as this increased action renews the body, so it may make too great demands upon the vital energy, and fatigue follows. From the non-use of our organs morbid deposits and growths take place, while action produces their absorption; and, conversely, if more wear and tear takes place than the supply, or the vital energy, can meet, the old materials of the body itself are carried away, and the body wastes, and rest is required to recruit it.

Rest, merely considered as cessation of the action of the voluntary muscles, is not enough, for we use other organs besides these—we use our thoughts, passions, and wills, and the physical organs, the brain and nerves, with which they are connected; and whatever may be thought to be the case with the thinking powers, it is at any rate clear that the *will*, and *attention*, are not in action during sleep. It is sleep alone which gives rest to that part of the brain and nervous system in which these powers reside. All the man, except what may be called his vegetable existence and apparatus, is at rest: he breathes, his circulation and his secretions and excretions go on. A certain amount of sleep, then, is necessary. Absence of sleep would quickly bring on madness or death, and too much sleep apoplexy. Between these extremes there are various ailments, arising from too little or too much sleep. From six to eight hours is about the average quantity for a healthy adult, depending upon his occupation or peculiar constitution. The physiology of sleep is not well understood, butth us much is clear,—that it should be taken in pure air and in the horizontal posture. When the body is upright the blood ascends to the brain in a direction contrary to gravity by a certain expenditure of force, less force being required to propel it in a horizontal direction. As to pure air, the necessity of it is obvious, but it is mentioned because people do not always recollect that they spend a third part of their lives generally in their bedrooms, which they rarely do in any other single place.

An increased or diminished action, therefore, either of the heart on the one hand, or of the nutritive and secreting cells on the other, will obviously affect the circulation: the state also of the fluid circulated, the blood, as to its fluidity, quantity, &c., and of the tubes through which it circulates, the blood-vessels, will as manifestly affect it. The remote causes of disturbed circulation it is not desirable to investigate here in detail, for they are of course numerous; such as the presence in the blood of matters which the excreting organs cannot get rid of, or the absence of matters necessary for a particular secretion; excessive exercise, causing hypertrophy of the heart; the pressure of a tumour on the blood-vessels, or other obstruction to the movement of the blood, &c. Under the following heads, *Congestion*, *Inflammation*, *Ulceration*, &c. &c., a sufficiently clear general idea may be formed of the pathology of the circulation.

Congestion.—If the blood be mechanically or otherwise driven from any large organ, it is clear that the other organs will contain a larger quantity than usual. Cold applied to the surface of the body, or a dry state of the skin, will, in this way, cause congestion of the internal organs, which may lead, if continued, to organic disease of some of them, or to hæmorrhage, dropsy, &c. Again, if in any simple secreting organ the cells decay and are thrown off, and block up the minute secreting cavities or tubes, the circulation through the organ becomes impeded, and local congestion is set up, which may so impede the whole circulation as ultimately to cause increased action of the heart, hypertrophy of the left ventricle, and, after a time, congestion of other organs. The increased quantity of blood in any organ during congestion is chiefly in the veins: any pressure, therefore, on the veins which obstructs the passage of the blood through them, or a weak state of their coats from debility, which causes them to dilate under the ordinary pressure of the circulation, will lead to congestion.

With the exception of the brain, all the important viscera are contained in cavities, with yielding walls, such as the chest and abdomen: when, therefore, there is an increased quantity of blood in them, they can expand and make room for it. The brain, on the other hand, being contained in a hard unyielding bony case, cannot so expand; the presence, therefore, of any additional matter, as a tumour in the substance of the brain, or blood or serum in its ventricles, or blood in its veins, must retard the access of arterial blood to the minute structure of the brain, and immediately impair the more obvious functions depending on it, namely, those of sensation and voluntary motion, and ultimately the supply of nervous power to the important viscera. Thus fatal apoplexy sometimes occurs without any other morbid appearance than an unusual quantity of blood in the veins. Anything which obstructs the passage of blood *from* the brain, as pressure on the jugular veins, will of course cause venous congestion. But pressure on the carotid arteries, or an arrest of the action of the heart, by preventing fresh arterial blood going *to* the brain, while the conversion of the arterial blood already there into venous blood is still going on, will also cause venous congestion, and lead to syncope or apoplexy: and, in the same manner, a continued feeble action of the heart, in cases of extreme debility, will produce a comatose state. Sleep, indeed, though chiefly arising from nervous exhaustion, and therefore a diminished action of all the observing organs, is much facilitated by the sluggish condition of the circulation, which generally comes on at night, and which is still further increased by the horizontal position.

An increase in the quantity of arterial blood sent to the brain of course produces consequences the opposites of those caused by congestion; such as excitement, strong muscular action, delirium, or madness.

INFLAMMATION, whatever be its remote cause, consists in an increased quantity of arterial blood being contained in, and circulated through, any structure, the minute arteries and capillaries being enlarged. Increased redness and size of the parts inflamed are always accompanying symptoms, and generally throbbing pain and heat.

A mere increase of arterial blood sent into, and of venous blood flowing out of, any part—*i. e.* an increased activity of the circulation—is not inflammation, for this, if balanced by an increased action of the nutritive and secreting cells, would lead to hypertrophy, or increased secretion, while, if the lymphatics were equally active, a more rapid renewal of structure would be the only result. But, in inflammation, more arterial blood than usual is not only sent through but is also present in the inflamed part, the minute arteries being dilated, and such of the capillaries as contained colourless blood, in a state of health, being so expanded as to admit the coloured globules. The first actual pathological condition, then, of an inflamed structure is a dilated state of its small arteries and capillaries. The causes of this dilatation are manifold: thus an increase in the number or force of the contractions of the heart, whether caused by over-exercise or hypertrophy of that organ, will propel more blood than usual to every part of the body; and if this be more than can be used for the nutrition, &c., of all or any of the structures, the dilatation of the small arteries and capillaries of all or some of the structures, and consequently inflammation, must result. Again, if the larger arteries leading to any part become more elastic (*i. e.* not simply more dilatable, as they might be from weakness, but also more resilient, so as to contract after dilatation with greater force), thus yielding to the impulse of the heart, and admitting more blood, and resuming their former size with more spring, that part will receive more arterial blood, and either hypertrophy or inflammation, as before, will result. Again, instead of supposing more blood to be sent to any organ, let us suppose the blood to contain an increased quantity of the elements of its structure or secretion; it is clear that, as far as regards the particular organ, the case is the same as if it received more blood of the ordinary quality. If instead of the blood being richer in the elements of the secretion, the secreting cells be less active, the balance of supply and demand is equally disturbed; but the usual result is, as we have seen, congestion, and not inflammation. But these morbid conditions of the heart, the larger arteries, the blood, or the nutritive and secreting cells, are not the only causes of a dilatation of the minute arteries and capillaries: this condition may be brought about through the nervous system. Thus a grain of sand in the eye causes pain, and, by a reflex action, the small arteries and capillaries of the eye-ball and lid expand, and become filled with red blood, and fluid is poured out which washes away the offending particle. Heat applied to the skin causes the same injection of the minute vessels, and, if severe, leads to the pouring out of fluid and the formation of a blister. So the emotion of shame causes a blush, which is the flowing of arterial blood into the capillaries of the face. Cold and fear cause at first an opposite state of things, namely, a compression of the capillaries, and consequent paleness, but the re-action leads to redness and the pouring out of sweat. Most stimulants are indeed supposed to act like cold and fear, by first causing a contraction of the capillaries, just as a stimulus to the nerves supplying a muscle causes it to contract; and the re-action or relaxation is said to arise from the consequent fatigue of the nervous energy. However this may be, there are certain stimulating and irritating causes, whether mechanical or emotional, which lead to a local dilatation of the minute arteries and capillaries, and consequently to a greater local amount of arterial blood. The nutritive and secreting cells, having thus more blood offered to them, act more energetically, and so create a demand not merely for the passive presence of pure blood, but also for its more constant renewal, and this causes the larger quantity to be propelled through the part as rapidly as the usual and smaller quantity; also, the same stimulus which called the nerves of the reflex function into action upon the coats of the small arteries, causes them to operate upon the larger arteries, which expand, and thus allow an increased supply of blood to pass through them. Both the above causes, then, lead in the end to an augmented impulse of blood to the part, and we have exactly the same state of things as when the action begins in the large vessels themselves.

The redness, heat, and swelling of an inflamed part may be readily understood: the pain arises from increased pressure upon the nervous filaments. The dilatation of the vessels may ultimately extend to the heart, and lead first to its more violent and afterwards to its more rapid action, and thus the whole body may be brought into the state called symptomatic fever. If the nervous system suffer much irritation, fever is produced.

The next stage of inflammation is the *effusion* of fluid from the enlarged capillaries, which in the lowest degree of fever is merely the increased natural secretion of the inflamed surface, as of serum from serous membranes, and mucus from mucous membranes, or of blood in a thin state of the blood or the coats of the vessels; in higher degrees of inflammation fibrin is poured out, which coagulates, becomes organised, and forms adhesions; or an effusion of pus, *i. e. suppuration*, may follow. If the minute vessels resume their natural size, and the fluid effused is absorbed, the inflammation is said to terminate by *resolution*. If suppuration takes place in the areolar tissue, the different portions of pus formed may coalesce, and round the collected matter a coating of fibrin may be formed, which when coagulating and becoming organised forms a sac for the enclosed pus: this is called an *abscess* (see Abscess). The abscess generally bursts on the surface of the skin, or into some cavity (unless artificially laid open), and the pus escapes: sometimes, but rarely, the pus is absorbed again, and the abscess is said to be *dispersed*. After the abscess has burst, its walls become a suppurating surface, upon which granulations of fibrin are formed, which become organised, and the destroyed structures are thus renewed in the same way as in the case of wounds. If the system is not strong enough to form a coating of fibrin, the pus burrows among the surrounding parts, and becomes a *diffused abscess*.

Ulceration is a process in which the lymphatics are as active as the arteries, and absorb the pus as soon as it is formed, and there is then a disappearance of the natural structure, without, as in the case of abscess, anything to supply its place. It is generally by the ulceration of the parts between an abscess and the skin that the former makes its way to the surface.

Mortification, or gangrene, is the death of any structure, which may arise from a deficient supply of blood, from a division of its nerves, and other causes, but it is also one of the results of inflammation. The dead structure is then treated as a foreign body, and is got rid of by abscess and ulceration, or sometimes, in the case of a limb, the mortification will cease at a point where the circulation is active enough to throw out a stratum of fibrin, which becomes organised, and forms a wall, cutting off the dead matter from the living. Inflammation then takes place, pus is effused, and the mortified part is separated.

Hæmorrhage has been several times mentioned. It is a pouring out of blood, arising either from the rupture or wound of a larger artery, or in cases of debility, local or general, from the blood, when extremely thin, exuding through the weakened coats of the minute blood-vessels and capillaries.

§ 4. PATHOLOGY OF THE NERVOUS SYSTEM.

Disorders of the nervous system are characterised by increased or diminished action of the mind, the bodily senses, the muscular system, or the important viscera; extending, on the one hand, to a complete loss of power, and on the other to mania, acute pain, or strong convulsions. The disease may begin in any of the nervous centres, or in the extremities of the nerves, the disease of either ultimately affecting the other; and it may arise from mechanical pressure (as of a tumour, spicula of bone, or effused serum), from the death or diminished power of the nerve-matter, unconnected apparently with other causes, or from the irritation of the extremities of the nerves.

If a nerve be divided, whether it be one transmitting nervous excitement to the centres, or carrying influence from the centres, it is clear that its conducting power must altogether cease. If it be a nerve of sensation, and the end of the trunk leading to the brain, or *above* the point of division, be irritated, the mind refers the sensation to the original extremities of the nerve; so that after the removal of a leg or other limb, irritation of the end of the nerve causes a sensation as of pain in the toes or other extremities of the amputated limb; and for the same reason pain is not always cured by dividing the nerve of sensation, as is sometimes done in tic douloureux, for it may arise from irritation of a spiculum of bone or other matter near the entry of the nerve into the brain: irritation below the point of division causes no sensation. The nerve of motion, on the other hand, when irritated above the point of division, causes no muscular action, but irritation of the other part of the nerve does so. What severance of a nerve effects completely, pressure does in a minor degree; and if strong, of long continuance, or extending through the whole course of the nerve, will cause the total and permanent loss of sensation or excitability to motion by any stimulus, however great. When the pressure is severe, pain in the nervous trunk itself results.

Nervous power is continually and daily exhausted by the natural stimuli which call it into action, and is as continually repaired by rest, sleep, &c.; but if very powerful or too long continued stimuli be applied, a consequent long or permanent loss of power ensues. Thus blindness may be caused by the continued strong reflection of light from snow on the retina, or by a flash of lightning; and if the latter strongly attack the nervous centres, the brain, and spinal cord, it may cause instant death. Artificial stimulants, therefore, though they *excite* the nerves, yet produce a corresponding subsequent exhaustion, and give no increase of nervous power,—this can only be supplied by the nervous centres themselves. A divided nerve will heal again; but when permanently separated, the power of motion or sensation is soon for ever lost, and the nerve dwindles away. There are certain poisons which excite strong muscular contractions: this they appear to effect through the circulation; for strychnine applied to the spinal cord has no effect, though if taken into the stomach it causes convulsions; and if upas or angustura be given to an animal whose spinal marrow is cut through, none of the parts supplied with nerves coming from the lower part of the cord will be affected.

Nervous power may be diminished or destroyed by other means besides division, or pressure, or excessive stimulation,—as by narcotic poisons; thus, opium applied to the living nerve paralyses it: handling lead paralyses the hand (see Colica Pictonum); and rubbing tincture of belladonna round the eyes deprives the muscles of the iris of their contractile power. Narcotic poisons taken into the stomach have been proved experimentally to act through the circulation (as is the case with the muscular irritants above noticed); and thus the whole nervous system must be brought under their influence, although if they have only the special power of acting on a particular class of nerves or other structures, their effects may be only local. Nux vomica taken into the stomach will be much longer in destroying the irritability of a limb of which the arteries have been tied, than that of the rest of the body. When, however, the structures locally affected through the circulation are the nervous centres themselves, the effect will of course be general; and it is probably in this way that narcotics cause death, however rapid it may be,—as in the case of poisoning by prussic acid.

The above remarks have chiefly reference to the nerves of common sensation and voluntary motion.

With regard to the nerves of the excito-motory and sympathetic systems, the same observations will generally apply; but the following considerations must not be lost sight of. In the former system, the mind takes cognizance of the impressions on the nerves of sensation, and dictates their action to the muscles through the nerves of voluntary motion. In the two latter systems the mind is not conscious of the excitement of the nerves going to their centres, nor of the nervous influence sent out through the nerves going to the involuntary muscles or the viscera, &c.: the effect, therefore, of any excitement of the nerves of these systems is only perceived through the increased or retarded action of the involuntary muscles or vital organs, unless the nerves of sensation become themselves affected by sympathy with the nerves of the other systems. Thus in Saint Vitus's dance the intestinal irritation (from worms for instance) may affect the nerves going to the spine, and be reflected thence as convulsions of the muscles, without the nerves of sensation being affected. Not only convulsions, but other affections of the muscles acted upon contrary to the will, may be produced by this reflex action. St. Vitus's dance, epilepsy, convulsions, tetanus, and hydrophobia, are instances of diseased muscular action: some of these depending no doubt upon the direct influence of the nervous centres, but the greater part being examples of reflex action. In St. Vitus's dance and hysteria the peculiar and grotesque movements result from the attempt of the will to counteract the involuntary action of the muscles; in convulsions the flexor and extensor muscles are alternately in strong action; and in tetanus and hydrophobia the same set of muscles are continually affected, and thus a rigid state of the parts is the result, which is called tonic spasm.

The excretory function of the kidney may be called into action by irritation of the nerves of the sympathetic going to it immediately at their origin in the ganglia, or from irritation applied to the kidney itself, transmitted to the ganglionic centres, and reflected from these organs to the kidney as a stimulus to discharge its function; or, again, from the nerves of some other excreting organ being irritated by a superabundance of matters in the blood which it is destined to excrete, these nerves going to the ganglionic centres, and transmitting nervous influence to the nerves going from the ganglia to the kidney, and calling it into such altered action as may enable it to excrete these matters in addition to those which it naturally gets rid of. As all the systems of nerves seem to transmit and receive some branches from and to each other, and as particularly the sympathetic system seems to consist in large proportion, of branches connecting the viscera with each other, this sympathetic action or affection of the different sets and systems of nerves may be understood. Whether this be the way in which sympathetic affection is brought about may be doubtful, but of the fact of its existence there is no doubt.

Examples of these reflected sympathetic affections are, itching of the nose and anus from worms, itching of the glans penis from disease of the kidneys, pain in the chest from uterine disorders, hiccup from irritation of the intestines, and the dilatation of the larger trunks of arteries following upon that of the minute vessels in inflammation. The *transference* of action just alluded to in the case of the kidney performing the duty of other organs, extends to diseases; thus rheumatism may be transferred from a joint to the heart, inflammation of the testicle to the parotid gland. The state of the blood might be supposed to account for the sympathy of one organ with another, but would not do so in a case of transfer of affection. To account for this we must refer to sympathy of the nerves; and as this seems the only cause of some disorders, so it would appear to be the method by which nature, in a state of health, causes all the different functions to be carried on harmoniously.

The manner in which conditions of the nervous system affect the circulation demands notice. We have already observed the effect of an emotion, shame, in causing the expansion of the capillary vessels of the face, and the admission of red blood, in the phenomenon of blushing: so, causes of general excitement, whether emotional or physical, acting during the day, make the beats of the heart and the pulse to be more frequent and stronger in the daytime than at night, when nervous exhaustion ensues. In general, all causes of excitement affect the body more strongly when it is in full vigour, than when exhausted or debilitated from fatigue or disease. Thus the pulse of the strong man is more affected by stimulants than that of the weak one; and alcoholic drinks act more strongly on the vigorous body of the morning than on the fatigued one at night;—indeed, in some cases of debility, where the pulse is more frequent than in health, stimulants lower the pulse.

When there is exhaustion from previous nervous excitement, such as that produced by disease, or from a deficiency of blood supplied to the nervous centres, and when there is at the same time some local disease, the local irritation is transmitted to the nervous centres which react upon the whole body, which is then thrown into a state of general *irritation*. This state is generally characterised by a morbid sensibility of the entire system, the brain and mind, the heart and circulation, the muscles and bodily senses. Thus we may have the quick pulse, mental excitement even to mania, spasms and convulsions, crying, sobbing, palpitations, intolerance of light and sound, vomiting, hiccups, &c., according to the violence of the affection. Again, the circulation may be suddenly, but temporarily, arrested by a shock to the brain from an accident or violent emotion, when fainting or syncope results, or the heart may be caused to beat less frequently from the pressure of blood or serum effused on the brain. In the same way that the nerves of common sensation and of voluntary motion have their powers exalted or depressed, the nerves of the other senses may be affected. Thus in amaurosis and intolerance of light we have examples of these conditions in the optic nerve.

The above view of the pathology of the nervous system is of course very imperfect, and can only be regarded as suggesting to the reader ways of accounting for some of the symptoms of diseases which he will find described in the Third Part of this work.

CHAP. IV.—GENERAL THERAPEUTICS.

It had been originally proposed to conclude the First Part of this work with a chapter on Therapeutics, or the general treatment of disease; the consideration, however, that much has been said in the previous chapters on the means of avoiding disease in general, and in the Second and Third Parts on the treatment of special disorders, has rendered it advisable to abstain from increasing the size of the work. The heading has been retained in order to keep the general framework perfect; but the only part of the subject here treated of is the use of baths and mineral waters, as they are really, it is conceived, a curative means not so generally resorted to as they might be. With the two following sections on the use of Bathing and Mineral Waters the First Part will terminate.

§ 1. Bathing.

No remedy has been more abused, whether as a means of preserving or restoring health, than bathing; and when we consider its mode of action, it will be seen how potent an agent it must be for good or ill, according as it is judiciously or injudiciously applied.

Bathing is subjecting the body, either wholly or in part, and either by immersion or affusion, through one of its most important organs, the skin, to the action of a medium (water) which differs from the air in density, temperature, moisture, its power of circulating heat, and in its chemical qualities. As to its chemical constituents, simple water has none which are not found in large proportion in the body; but in artificially medicated or natural mineral springs, the special medical effect of the substances contained in them also comes into operation. Water, however, is not the only medium in which the body may be immersed; but, unless some qualifying word be used, " bathing" means bathing in water. Bathing may be cold or hot, local or general, by immersion or in other ways.

The Cold Bath.—The temperature of the blood and interior of the body is about 98°, while that of such parts of the surface as are usually clothed is about 90°. If, therefore, the body be immersed in water below 90°, there is a sensation of cold, a shrinking of the skin, and a determination of the blood from the small capillary vessels of the surface to the internal vessels. These symptoms of course increase with the coldness of the water; and when it is really cold, say below 65°, the circulation is turned with a certain violence towards the large vessels and internal organs; the action of the heart becomes rapid, the pulse small, the breathing short and quick, and the skin pale and cold. To this state of things, if the bath agrees, and the natural powers of the constitution are strong enough, a reaction succeeds, even while in the water, and more evidently after leaving it, and dressing and moving about, when the heart and large vessels force the blood back again to the surface, and indeed to all the outlets; so that the skin glows, and perhaps perspires, the secretory organs act more strongly, the liver, the interior surface of the bowels, and even the absorbents, show an increased activity, and there is a general feeling of liveliness and vigour. These symptoms probably are not owing merely to the *mechanical* effect of the temperature expanding or contracting the pores of the skin, and thus sending the tide of the blood towards or from it by hydraulic action as it were, but no doubt depend to a very great extent upon the impression of the cold or heat on the nerves of the skin, which impression, by the nervous sympathy between the surface and the interior, is conveyed to the internal organs.

The Hot Bath acts in a manner the converse of all this. Thus, suppose the temperature of the water about 98°, the surface will feel warm, the skin will expand and become rosy, the capillary vessels will enlarge, the action of the pulse and heart will be augmented, the perspiration and the secretions generally will be increased, and in fact the symptoms will be similar to the stage of reaction from the cold bath. During the reaction from the hot bath the current of circulation will again set towards the heart and large vessels, so as to restore its equilibrium, the skin will gradually become cool, and all the above symptoms will subside more or less quickly, according to the heat of the bath and the condition of the system. Now, in any state of the constitution or of the internal organs, where there is a want of power to set up the reaction which restores the equilibrium of the circulation, or to prevent the too sudden rush of the blood to the internal organs, or where those organs themselves are in a state of structural disease, they will suffer from congestion. In such a state, then, the action of the cold bath, or the reaction from the warm bath, will produce dangerous consequences, evidenced by symptoms in the organs affected; whether headache, stupor, cough, spitting of blood, chilliness, or weariness. Where, therefore, there is little rallying power in the system, or where there is fulness, inflammation (even of a subacute form), or structural change of any internal organ, the general bath, either hot or cold, should be avoided; and where any unpleasant general symptoms whatever attend their use, their unfitness should be suspected; for there may be latent internal disease, or strong tendency to disease, of some organ. If medical advice is not taken, we should try the effect of baths at 90°, and bathe in the bright part of the day midway between two meals. If no unpleasant symptoms follow this, the temperature and the hour may be gradually changed. With this warning, it may now be said, that in valetudinary states of health, in impaired action of the skin and secretory organs, in neuralgic affections, in the sequelæ of gout and rheumatism, and in so-called nervous states, general bathing is found useful.

River-bathing, or the hot or cold artificial pure water bath, needs no description; but it should be observed as a general direction that they should not be indulged in so long that reaction does not easily follow, and that the dressing should be performed quickly, and easy exercise taken after it, unless the sedative effect of the tepid bath is required, when it may be succeeded by warmth and repose in bed. This habit, however, is very enervating when not required for some special states of ill health. Some particular forms of baths may be now described.

The Vapour Bath is surrounding the body by steam in a chamber or box. A tolerably effective temporary one may be formed by sitting on a chair with a blanket fastened tight round the neck (or indeed the head may be placed within the blanket), and reaching to the floor, the air being excluded as much as possible, and a flexible tube connected with a vessel of boiling water on the fire being passed underneath the blanket. It is very relaxing, as the pressure of the steam not being greater than that of the atmosphere, does not retard the perspiration caused by the heat, as the pressure of hot water does. It should only be used where specially recommended.

The Russian Bath is a vapour-bath of a temperatur gradually increased to a very high degree, followed by sudden plunging of the body into snow, or, in this country by an exposure to cold pumping. This kind of bathing should not be used in any state of ill health without good advice; though it is said to be a good fortifier of the body when already in a healthy state; and it certainly appears that it can be used without producing any evidently dangerous effects.

The Hot-air Bath is the same as the vapour bath, air being employed instead of steam. It causes profuse perspiration, as the air is not only hot, but dry, and as there is no increased pressure to counteract the effect of the heat on the skin: it should certainly not be used unless recommended by a physician.

The Shower Bath is an arrangement by which water is caused to fall down on the body through numerous small apertures. This is a very convenient method of hardening the body against the effects of sudden changes of temperature, and is indeed altogether a cheap and convenient bath, as the head and breast receive the first shock, and the feet may be placed on a wooden grating, so as not to be immersed in the cold fluid. A small quantity of water suffices, as it may be used several times over during the same bath. Except in these modifications, it does not differ from the common bath.

The Douche Bath is the forcible impinging of an undivided stream of water upon some part of the body. The common pump is the most familiar example of it, or even the pouring water from a jug. A natural spring, or various artificial means, may supply this kind of local bath. As its effect is directly and powerfully exciting, it is a powerful remedy in restoring vitality to parts suffering from debility: it is, therefore, beneficial in sprained joints, scrofulous swellings, paralysis, neuralgic pains, &c.: it is used either hot or cold, and when the body is already immersed in the water or out of it.

TOPICAL BATHS.—These are of various forms, made to suit the different parts of the body; as the hip bath, the foot bath, the head bath.

MUD BATHS, SAND BATHS, EARTH BATHS, MEDICATED BATHS, need not be here referred to, as where advisable they are mentioned in the body of the work.

SEA-BATHING.—Sea-water contains common salt, Epsom salt, Glauber's salt, the muriates of lime and magnesia, and some iodine and bromine; but the quantity of mineral ingredients varies greatly, being about a scruple to the pint in the Baltic, and two ounces at the Equator. The action of sea-water on the skin is stimulating: internally it acts as a purgative and anthelmintic. Its effect may be judged of by what is said above and in the second part of this work on bathing and mineral waters generally; and the same caution must be observed with respect to its use. The sea-air, and the various climates of the places resorted to for sea-bathing, materially modify its action.

§ 2. MINERAL WATERS.

In many parts of the United Kingdom and other countries are found natural springs charged with mineral ingredients, and sometimes gases, and of various degrees of temperature. These waters are used both for drinking and bathing, and produce far greater effects in most cases than is due to the quantity of their mineral ingredients. Artificially prepared mineral waters generally act in a similar manner, and sometimes almost to the same extent as the natural waters; but we have only to dissolve the same amount of oxide of iron or of Glauber or Epsom salts, as are found in any mineral spring, to perceive that the artificial water by no means comes up to the natural preparation; and the difference is much more observable when the effects of the mineral springs are noticed on the spot. This may be perhaps partly owing to the force of imagination—a great result being expected from their use,—to the difference of climate, and the change of habits; but it may be also, and probably is, partly due to the particular states of chemical combination and mechanical preparation in which the minerals are presented, and still more perhaps to the many other chemical elements existing in them, in however small a quantity, which the art of the chemist has not yet detected. It will be seen that they are usually classed as saline, chalybeate, sulphureous, and acidulous, with some subdivisions: and they may be said generally to act as alteratives (that is, as restorers of a general healthy state of body), aperients, stimulants, or tonics; and in the case of such as contain iodine or bromine, as promoters of the reduction of glandular swellings and the absorption of glandular deposits. They are frequently also used both internally and externally in many kinds of disorders of the digestive organs and skin, and in bronchial affections, asthma, gout, and rheumatism. Indeed, the list of diseases in which they are sometimes said to be useful is so comprehensive, that it must be clear that they depend for their efficiency upon some special mode of operation, which science has not as yet clearly pointed out, and that they produce some primary set of actions which have not yet been generalised.

WEIGHTS AND MEASURES.

Apothecaries' Weight and the English Wine Measure are used throughout the work, and are those by which medicines ought to be prepared: they are as follows:—

WEIGHTS.

One Pound	contains	12	Ounces	=	5760	grains.
One Ounce	"	8	Drachms	=	480	"
One Drachm	"	3	Scruples	—	60	"
One Scruple	"	"	"	=	20	"

MEASURES.

One Gallon	contains	8	Pints	=	70,000	grains of water.
One Pint	"	20	Ounces	=	8,750	"
One Ounce	"	8	Drachms	=	437·5	"
One Drachm	"	60	Minims	=	54·7	"

SYMBOLS, OR CHARACTERS.

℔	represents	a pound.	O.	represents	a pint.
℥	"	an ounce.	fl ℥	"	a fluid ounce.
ʒ	"	a drachm.	fl ʒ	"	a fluid drachm.
℈	"	a scruple.	♏	"	a fluid minim.
gr.	"	a grain.	gtt.	"	a drop.
C.	"	a gallon.			

The letters *fl* and *f* prefixed to the characters ℥, ʒ, mean a fluid ounce or drachm, as fl℥, fʒ. The letters ss. or *ſs.* put after the symbols mean half; as ℥ss. half an ounce; ʒ*ſs.* half a drachm.

āā., or *ana*, means "for each."

It was formerly customary to use drops: this was found to be a very uncertain mode of measuring, as the quantity dropped varied with the size of the bottle, and the quality of the fluid it contained, or the shape of its mouth. The minim measure has therefore been substituted for the drop; but it should be understood that they do not constitute equal quantities, as the minim contains nearly a drop and a half. Thus, for example, 10 minims of tincture of opium are equal to 15 drops. It is of importance that this should be borne in mind, in using all powerful medicines; as solutions of opium, morphine, arsenic, prussic acid, &c.

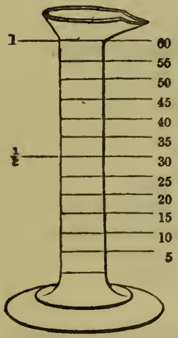
A table-spoonful is considered as measuring half an ounce.

A tea-spoonful as a drachm.

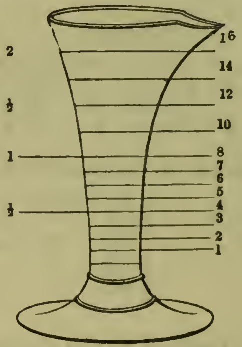
A wine-glassful as two ounces.

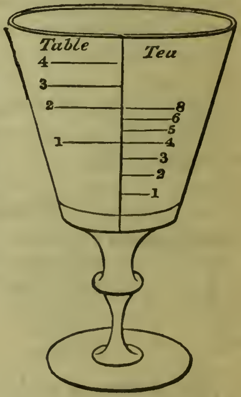
As spoons and glasses vary much in size, it is better, where accuracy is required, to use graduated glass minim and ounce measures. A graduated wine glass (as represented in the accompanying wood-cut) is useful for measuring tea and table spoonfuls of liquid.

Minim Measure.



Two Oz. Measure.





In order to prepare medicines with accuracy, the following articles are essential in addition to the glass measures :—

A pair of Scales, with weights from half-a-grain to two drachms.

A Glass Pestle and Mortar ;

A Spatula for spreading Plasters upon thin leather, which must be heated before it is used ;

A Bolus Knife, for dividing Powders and Pills ;

A Dutch Tile, for mixing Ointments or spreading Pills ;

A Funnel of Glass or Earthenware ;

An Enema Syringe.

To these may be added a couple of lancets, some adhesive plaster, and lints.

For proportionate doses of medicines, see the Table.

PART II.

MATERIA MEDICA.

Materia Medica is that branch of the medical art which treats of the nature of medicines, or remedies adapted for the relief or cure of diseases, their action on the animal economy, and their mode of administration. Their effect is greatly modified by the condition of the body; and the medicine which agitates us when in a state of health, may soothe us when under the influence of disease.

They are first arranged according to their therapeutical properties or effects on the animal body; and subsequently in an alphabetical order, by which means a facility of reference to each individual article is readily obtained: appended to several of them are lists of their more useful and officinal compounds usually prepared by chemists; and an account of the mineral waters and medicinal baths follows the list of medicines.

It is most imprudent to withdraw the treatment of disease from the care and skill of the medical practitioner; but a knowledge of the general properties and doses of medicine, and the most ready means of affording relief, among a rural population, or in situations where medical aid is not immediately attainable, is obviously so important as to render further comment unnecessary.

Antacids—Absorbents.

Medicines which correct acidity in the stomach and bowels. Their action appears to be purely chemical; they merely combine with the acid present, and neutralize it. They are simply palliatives, since the *generation* of acidity is only to be prevented by restoring the tone of the digestive organs. Their use should not be long persisted in, as they are apt to enfeeble the power of those organs.

Where the acid exists in the stomach, with flatulent eructations, ammonia and its compounds are to be preferred; if the acid matter be present in the bowels, magnesia, and preparations of chalk and lime, are more appropriate, as they are less likely to be neutralized or absorbed before they reach those parts. Where there is acidity in the urine, preparations of potash will be found most serviceable, as potash forms a more soluble salt than soda.

The principal medicines of this class are:—

Ammonia, and its carbonates.
———— Liquor of.
———— Compound spirit of (sal volatile)
Chalk.
Crabs' claws, prepared.
Hartshorn, burnt.
Lime-water.
Magnesia, calcined.
———— carbonate of.
Oyster shells, prepared.
Potash, and its carbonates.
Soda, and its carbonates.

ANTHELMINTICS—VERMIFUGES.

Medicines which procure the evacuation of worms from the stomach and intestines. The greater number of them act mechanically, dislodging the worms by the sharpness or roughness of their particles, or by their cathartic operation. Some seem to have no other qualities than those of powerful bitters, by which they either prove noxious to the worms, or remove that debility of the digestive organs by which the food is not properly assimilated, or the secreted fluids poured into the intestines are not properly prepared; circumstances from which, it has been supposed, the generation of worms may arise.

The specific, or more immediate anthelmintics only, are enumerated here; those that act by their cathartic or other properties will be mentioned under those heads:—

Allium (*Garlic*).
Cabbage Tree bark.
Cowage.
Corsican Moss.
Kousso.
Male Fern.
Tin Powder.
Turpentine.
Wormseed.

ANTISPASMODICS

Medicines which possess the power of allaying or removing inordinate motions in the system, particularly those involuntary contractions which take place in muscles naturally subject to the command of the will. Spasm may arise from various causes: one of the most frequent is a strong irritation, continually applied; such as teething or worms. In these cases, narcotics prove useful, by diminishing irritability and sensibility. Sometimes spasm arises from mere debility; and the obvious means of removing this is by tonics. Both narcotics and tonics, therefore, are occasionally useful as antispasmodics, such as opium, camphor, and ether, in the one class; and zinc, mercury, and Peruvian bark in the other. But there are besides several other substances which cannot with propriety be referred to either of these classes; and to these the title of antispasmodics is more exclusively appropriated. The principal antispasmodics, properly so called, are musk, castor, empyreumatic animal oil, petroleum, ammonia, assafœtida, sagapenum, galbanum, valerian, saffron, cajeput oil.—The *narcotics*, used as antispasmodics, are ether, opium, and camphor.—*Tonics*, used as antispasmodics, are copper, zinc, quicksilver, and Peruvian bark.

The principal antispasmodics are:—

Assafœtida.
Castor.
Galbanum.
Musk.
Rue.
Valerian Root.
Valerianate of Zinc.

ASTRINGENTS.

Remedies which, when applied to the body, render the solids denser and firmer, by contracting the fibres, independently of their living or muscular power. They thus serve to diminish excessive discharges; and by causing greater compression of the nervous fibres, may lessen morbid sensibility or irritability. Hence they may tend indirectly to restore the strength when impaired by these causes.

The principal astringents are:—

Acid, Gallic.
—— Sulphuric.
Alum.
Catechu.

Chalk, prepared.
Creasote.
Galls.
Iron, sulphate of
Kino.
Lead, preparations of.
Logwood.
Matico.
Oak bark.
Pomegranate bark.
Rhatany.
Rose leaves.
Tannin.
Vinegar.
Zinc, sulphate of.

Cathartics, Laxatives, Purgatives, Drastics.

All medicines which accelerate or increase the evacuation from the intestines, or which, when administered in a certain dose, occasion purging. These remedies, from a general difference in their modes of operation, have been classed under two divisions, namely, laxatives and purgatives. The former operate so mildly that they merely evacuate the contents of the bowels, without occasioning any general excitement of the body, or even stimulating the exhalant vessels of the intestinal canal; the latter produce a considerable influx of fluids from these vessels, and extend their stimulant effect to the system in general; and where these effects are very violent, the purgative is further distinguished by the appellation of DRASTIC. Laxatives may then be be said simply to open the bowels, and to carry off extraneous matter, which is out of the course of the circulation; but purgatives, as they occasion a constitutional effect, may be made subservient to many important purposes.

The principal medicines of this class are:—

Aloes, socotrine and hepatic.
Buckthorn berries.
Broom.
Colocynth, pulp of.
Elaterium (*wild cucumber*).
Gamboge.
Hedge hyssop.
Jalap.
Scammony.
Stavesacre.
Tobacco.
Mercury, chloride of (*calomel*).
————, grey oxide of.
Cassia, pulp of.
Castor oil.
Rhubarb.
Senna.
Dandelion, extract of.
Magnesia.

Magnesia, carbonate of.
———, sulphate of (*Epsom salts*).
Soda, muriate of (*common salt*).
Potash, tartrate of.
———, supertartrate of (*cream of tartar*).
Potash, sulphate of.
———, supersulphate of (*Polychrest salt*).
Soap, hard Spanish.
Sulphur, washed.
Sea water.
Cheltenham, Epsom, and Scarborough waters, &c.

CAUSTICS—ESCHAROTICS.

Substances which destroy parts by burning or chemically decomposing them. This they do either by uniting with animal matter and forming a soft pulp or species of eschar, or by causing the elements of the animal tissues to enter into new combinations; whence their cohesion is destroyed and their composition changed. Caustics are principally used to remove excrescences, to establish an ulcer, or to change the surface of an ulcerated part, and thus convert it into a simple sore.

The principal caustics are:—

Caustic potass.
Mineral acids.
Nitrate of silver (*lunar caustic*).
Red precipitate.
Sulphate of copper (*bluestone*).

DIAPHORETICS.

These are medicines which, being taken internally, increase the perspirable discharge by the skin. When this is carried so far as to be condensed on the surface, it forms sweat; and the medicines producing it are termed sudorifics. Between diaphoretics and sudorifics there is no distinction; the operation is in both cases the same, and differs only in degree from increase of dose, or the employment of auxiliary means. Obstructed perspiration, or diseases in which diaphoretics will prove useful, may be connected with fever and inflammation, or may occur with a slow, languid circulation. It will be apparent that very different remedies will act as diaphoretics in these opposite states of the body. In the former, those medicines will be most appropriate which act by relaxing the surface, and which at the same time have a tendency to diminish the action of the heart and arteries; such as antimonials and the saline diaphoretics. In the latter, those remedies should be employed which act as stimulants and increase the force of the circulation, such as ammonia and camphor.

In addition to the medicines, general or partial tepid bathing, and the use of diluent drinks, promote the production of perspiration.

The principal diaphoretics are:—

Ammonia, acetate of.
————, solution of (*Minderus' spirit*).
————, compound spirit of (*sal volatile*).
Antimonial powder.
———— wine.
Antimony tartarized (*tartar emetic*).
Camphor.
Ether, nitric.
Guaiacum (*gum, resin, and wood*).
Ipecacuanha.
————, compound powder of (*Dover's powder*).
James's powder.
Nitre.
Sarsaparilla.
Salines.

Diuretics.

Those medicines are so called which, when taken internally, augment the flow of urine from the kidneys. It is observed, that such an effect will be produced by any substance capable of stimulating the secreting vessels of the kidneys. All the saline diuretics seem to act in this manner. They are received into the circulation; and, passing off with the urine, stimulate the vessels, and increase the quantity secreted. In whatever mode the action of diuretics is produced, the general effect is to diminish the watery part of the blood, and by this means promote the absorption of the fluid effused into any of the cavities, or into the cellular membrane.

The action of diuretics is promoted by drinking freely of mild diluents. It is also influenced by the state of the surface of the body; if external heat be applied, an increased secretion of urine is frequently prevented, and perspiration, or increased cutaneous secretion produced. Their success is very uncertain, the most powerful often failing. They are chiefly employed in dropsy; and as this disease is so frequently connected with organic affection, even the removing of the effused fluid, when it does take place, only palliates without effecting a cure. They have also been used in calculous affections, in gonorrhœa, and, with a view of diminishing plethora, or checking profuse perspiration.

The principal diuretics are:—

Borax.
Broom (*genista*), the top, in powder.
Bitter-sweet (*dulcamara*).
Cantharides (*Spanish flies*).
Colchicum (see *meadow saffron*), root and seed.
Digitalis (*foxglove*), leaves and seed.
Juniper berries, and tops.
Liquor of citrated potash.
Muriate of lime.
Pareira.
Potash, supertartrate (*cream of tartar*).
Potash, carbonate of.
———, acetate of.
———, nitrate of.
———, subcarbonate of.
Sarsaparilla, the root.
Senega.
Soda, bicarbonate of.
——, carbonate of.
Squill, the root pulverized.
Spirit of nitric æther.
Tar water.
Turpentine, spirit of.
Water, common.
Waters containing iron, &c. &c.

Emetics.

Substances capable of exciting vomiting, independently of any effort arising from the mere quantity of matter introduced into the stomach, or of any nauseous taste or flavour. The susceptibility to vomiting is very differently modified in different individuals, and is often considerably varied by disease. Emetics are employed in many diseases. When any morbid affection depends upon, or is connected with, over-distension of the stomach, or the presence of acrid indigestible matter, vomiting gives speedy relief. Hence their utility in impaired appetite, in acidity in the stomach, in intoxication, and when poison has been swallowed: they are serviceable in jaundice, arising from calculi obstructing the course of the bile in the biliary ducts; in catarrh and phthisis, their utility is obvious; in dysentery; at the commencement of different varieties of febrile affections.

They are useful in nauseating doses, in stopping hæmorrhages, in dropsies, swelled testicles, bubo, &c.

The operation of emetics is dangerous, or hurtful, in the following cases, namely, where there is a determination of blood to the head, especially in plethoric habits; in visceral inflammation, in the advanced stage of pregnancy, in hernia, and prolapsus uteri, and wherever there exists extreme general debility. The frequent use of emetics weakens the tone of the stomach. An emetic should always be administered in the fluid form. Its operation may be promoted by drinking any tepid diluent, or bitter infusion, as that of chamomile flowers, &c.

Where emetics are required to act quickly and without producing much nausea or depression, sulphate of copper and sulphate of zinc are to be preferred; the others are slower and more protracted in their operation.

The principal emetics are:—

Antimony, tartarized (*Tartar Emetic*).
Antimonial wine.
Copper, sulphate of (*Blue-stone*).
Ipecacuanha, powder and wine.
Mustard, flour of.
Zinc, sulphate of (*White Vitriol*).

EMMENAGOGUES.

These medicines are supposed to possess a power of promoting the monthly discharge from the uterus, which, from a law of the human economy, should take place under certain conditions of the female system. Suppression or absence of the monthly or menstrual discharge is in general the effect of some deranged state of the system, and therefore the emmenagogue to be employed should have reference to such deranged state. The articles belonging to this class may be referred to four different orders:—

1. *Stimulating* emmenagogues, as mercury, and antimonial preparations, which are principally adapted for the young, and those with peculiar insensibility of the uterus.

2. *Irritating* emmenagogues, as aloes, savine, and Spanish flies; these are to be preferred in torpid and chlorotic habits.

3. *Tonic* emmenagogues, as preparations of iron, the cold bath, and exercise, which are advantageously selected for lax and phlegmatic constitutions.

4. *Antispasmodic* emmenagogues, as ammonia, galbanum and the foot-bath. The constitutions to which these are more especially suited are the delicate, the weak, and the irritable.

The principal emmenagogues are :—

Ammonia, carbonate and subcarbonate of.
Aloes.
Borax.
Cantharides.
Ergot of rye (*secale cornutum*).
Electricity.
Galbanum.
Iron, all the preparations of.
Madder.
Myrrh.
Opoponax.
Rue.
Savine.

Emollients—Demulcents.

Emollients are those substances which have a power of relaxing the living animal fibre without operating mechanically. Those which are used to obviate the effects of any acrid and stimulating substances are called demulcents; they act, not by correcting or changing the acrimony of these substances, but by involving them in a mild and viscid matter, which prevents them from irritating the sensible parts of our bodies, or by covering the surface exposed to their action. They are principally employed in the treatment of inflammation, either general or local, in diseases of the urinary organs, and in cases of poisoning by acrid substances; their use is for the most part to alleviate symptoms.

The principal Emollients are :—

Almonds.
Arrow root.
Cotton wadding.
Expressed oils.
Figs.
Flour.
Groats, oatmeal.
Gum arabic.
Gum tragacanth.
Hog's lard.
Linseed, and meal.
Pearl barley.
Quince seed.
Raisins.
Sago.
Spermaceti.

Starch.
Suet.
Sugar.
Tapioca.
Tepid vapour.
Warm water.
Warm bath.
Wax.

Expectorants.

Medicines which promote the secretion from the bronchial tubes and air-passages, and facilitate its discharge. There are no medicines which directly or specifically cause expectoration. Medicines which are employed with this intention act through the medium of the system generally, and are very uncertain. There are two modes in which they appear to operate: first, by removing constriction from the exhalant vessels of the lungs, on which principle the nauseating expectorants seem to produce their effects; or, secondly, by stimulating these vessels, they increase the natural secretion where it is deficient, or alter its character where it is in an unhealthy state. All emetic substances which by their mechanical action dislodge accumulated secretions from the respiratory organs are most valuable agents in the treatment of many diseases which require the use of expectorants.

The principal expectorants are:—

Ammoniacum, gum.
Benjamin, flowers of.
Horehound, the herb.
Ipecacuanha.
Lobelia.
Moss, Ireland.
Myrrh Gum.
Peru, balsam of.
Seneka root.
Squill, powder, tincture, and vinegar.
Storax.
Tolu, balsam of.
Tartar emetic.

All demulcents, as oil of almonds, barley water, &c.

Epispastics (Blisters) and Rubefacients.

These operate on the same principle, and produce similar effects, differing only in degree. They may, therefore, be considered as subdivisions of one class.

The term epispastic has been applied to whatever application has the power of producing a serous or puriform discharge, by exciting a previous state of inflammation or suppuration. It includes blisters, issues, and setons; but it is more commonly restricted to the first of these. Rubefacients operate precisely in the same manner as blisters; they excite pain and inflammation, but only in an inferior degree; the skin is merely inflamed, and no vesicle is raised and no fluid discharged as is the case with blisters. By these effects, they more peculiarly obviate local inflammation. They are used, therefore, for the same purpose.

The principal epispastics and rubefacients are:—

- Ammonia, liniment of.
- Burgundy pitch.
- Cantharides.
- Camphor, liniment of.
- Croton oil.
- Capsicum.
- Elemi.
- Garlic
- Horse-radish.
- Mustard.
- Mezereon.
- Oil of amber.
- ——— turpentine.
- Solution of tartar emetic

Errhines.

Errhines are substances which, when applied to the living membrane of the nostrils, cause an increased discharge of its natural secretion.

The principal errhines are:—

- Asarum
- Euphorbium.
- Hellebore.
- Tobacco (various snuffs).
- Turbith mineral.

Narcotics and Anodynes

Are medicines which abate pain, diminish sensibility and irritability, and induce stupor or sleep. Most narcotics have a degree of stimulating power before producing their soothing effect, when they are given in small doses, while a full dose generally produces a narcotic effect at once, without any apparent stimulation preceding it.

The principal narcotics are :—

- Aconite.
- Belladonna.
- Camphor.
- Conium (*Hemlock*).
- Hyoscyamus (*Henbane*).
- Indian hemp.
- Lactucarium.
- Morphia.
- Opium.
- Poppy.
- Stramonium.

REFRIGERANTS

Are medicines which tend to diminish the heat of the body when it is inordinately great. When taken into the stomach, although they cause a sensation of cold over the whole body, they do not really diminish the temperature. Applied externally in the form of cooling or evaporating lotions to inflamed parts, the temperature ot the part to which they are applied becomes lowered.

The principal refrigerants are :—

- Acids.
- Cream of tartar.
- Mindererus spirit
- Nitre.
- Sorrel.
- Summer fruits.
- Tamarinds.
- Vinegar.
- Water.

SEDATIVES (*Calmatives*).

Sedatives are medicines which depress the vital powers without any previous excitement.

The principal sedatives are :—

- Hydrocyanic acid.
- Aconite.

STIMULANTS (*Excitants, Cordials*)

Are medicines which possess a power of exciting animal energy, and of supporting the languid and drooping powers of life. They seem to act on the whole nervous system, and exalt nervous force in general. They are divided into general and special (or local) stimulants.

The principal general stimulants are:—

Æthers of various kinds.
Ammonia.
Camphor.
Cajeput oils.
Capsicum and all the aromatic seeds and roots and their preparations.
Cinnamon.
Cloves.
Electricity and galvanism.
Ginger.
Hellebore.
Nutmeg.
Serpentaria.
Turpentine.

The Special Stimulants are:—

Epispastics.
Ergot of rye.
Iodine.
Iodide of potass.
Mercury.
Strychnia.

TONICS (*Corroborants*).

Medicines which increase the tone of the muscular fibre, and whose continued administration gives strength and vigour to the body. Tonics to a certain extent are stimulants, inasmuch as they rouse the vital energies, but the excitement is slowly produced and is permanent. There are no remedies which require greater discrimination in their administration than tonics; as a general rule, they ought not to be given in ardent fever, when the pulse is hard, the stomach irritable, and the tongue foul. The diseases in which they are appropriate are evidently those of deficient power.

The principal tonics are:—

Alum. The mineral acids.
Bark, Angustura.
——, Canella
——, Cascarilla.
——, Cinchona.
——, Oak.
——, Peruvian.
Buckbean.
Chiretta.
Copper, sulphate of.
Galls.
Gentian.
Iron, the various preparations of.
Myrrh.
Orange and lemon peel.

Pomegranate bark.
Quassia.
Quinine.
Wormwood.
Zinc, the sulphate and oxide of.

Acid, Acetic.

The principal source of acetic acid of late years has been wood; hence it is sometimes called pyroligneous acid. In its pure concentrated state it is highly volatile, exhaling an extremely pungent agreeable odour, and so acrid that it cannot be tasted: when put upon the skin, it inflames and blisters it, and in cases of emergency may be usefully so employed by moistening a piece of linen with it. It destroys warts and corns when applied with a camel's hair pencil, care being taken that it does not run on the sound skin. It is an excellent remedy in ringworm of the scalp, and from its pungency may be applied to the nose in fainting fits. It forms the basis of aromatic and camphorated vinegar.

Acid, Citric.

Citric acid, or crystallized lemon-juice, may be used in a state of solution for all the purposes for which lemon-juice is employed. Five drachms dissolved in half a pint of water, adding twenty drops of tincture of lemon-peel, is about equal to the same quantity of lemon-juice. A scruple of the crystallized acid, with a portion of sugar dissolved in a pint of water, and a little grated lemon-peel, forms a good lemonade, and is a cooling refreshing drink. Fifteen grains dissolved in a wineglassful of water, with a small portion of sugar, and a scruple of carbonate of potash, make an effervescing draught.

Acid, Gallic,

Is a powerful astringent, and a remedy of great value in all forms of hæmorrhage from the kidneys or bladder, more particularly those where there are no inflammatory symptoms present; also in hæmorrhage from the womb, and as a local application to fleshy fungoid excrescences.

Dose: from five to ten grains, two or three times a day in the form of a pill, or suspended in a mixture of mucilage and water.

ACID, HYDROCYANIC (*Prussic Acid*).

This peculiar acid exists in many members of the vegetable kingdom, the more familiar of which are bitter almonds, the cherry laurel, the peach, the kernels of fruit, pips of apples, &c. Pure prussic acid in the smallest dose is a most active and deadly poison: when properly prepared for medicinal use (as in *hydrocyanic acid diluted*), and its effects carefully watched, it is the most efficient medical sedative we possess. It is used in spasmodic coughs, asthma, hooping cough, hiccough, and in allaying the irritability of the stomach in dyspepsia. As a local application, properly diluted, it is particularly useful in abating the itching in irritating affections.

Dose.—Two minims of the dilute acid gradually increased to eight, in a wine-glassful of emulsion combined with the solution of the carbonate of potash; also in decoction of lichen, infusion of calumba, or decoction of sarsaparilla.

ACID, MURIATIC,

Is a compound of chlorine and hydrogen in equal volumes. It has therefore received a name expressive of its composition, and is called hydrochloric acid It is efficaciously administered in typhus, scarlatina, and other malignant fevers; also in the form of gargles, in putrid sore-throat, in such quantities as to render it sharp to the taste; also by way of injection in gonorrhœa, where the ardor urinæ is troublesome, in the proportion of two or three minims to an ounce of distilled water. After copious evacuation of the bowels, it is one of the most efficacious remedies for preventing the generation of worms; for which purpose the infusion of quassia is an excellent vehicle.

Dose.—♏xv. to xx. frequently repeated. Care should be taken not to measure the dose in a leaden or pewter spoon.

It may be further observed, that where the permanent influence of an acid is required, a mineral one ought invariably to be preferred, as such bodies appear to be beyond the control of the digestive process, and are incapable of being decomposed by it; whereas, on the contrary, it seems probable that the organs of assimulation have command over those of a vegetable nature, and generally decompose them.*

Acid, Nitric,

Is of an extremely acrid taste, and highly corrosive; applied to the skin, it tinges it indelibly yellow. It is chiefly employed as a pharmaceutical agent. It destroys warts in the same way as the strong acetic acid and muriatic acid. As an escharotic, it has been frequently used for the destruction of tumours. As a general tonic, it is less powerful than sulphuric acid. It possesses some advantage over sulphuric acid in cases of dyspepsia accompanied by sickness and great irritability of the stomach, as it tends to allay these symptoms. It is beneficial in keeping up the tone of the system during a course of mercury, but rather favours the action set up by that mineral. The most appropriate mode of its internal administration is in the form of dilute nitric acid.

Acid, Nitric, Diluted,

Is made by adding an ounce of strong nitric acid to nine ounces of water.

It is given in febrile diseases; and water acidulated with it forms an excellent antiphlogistic and antiseptic drink. In typhus, malignant, and petechial fevers, it has been given repeatedly with decided advantage. As a lotion, ʒj. or from fifty to sixty drops, to half a pint of water, is a useful application for producing healthy granulations in old ulcers; and in this form it is recommended by some eminent surgeons. It is a good gargle in ulcerated throat.

Dose.—Internally, x. to xxx. minims in two ounces of water, two or three times a day, with a little simple syrup, forms a very agreeable draught.

---

* Dr. Marcet on the Treatment of Calculi.

Acid, Nitro-Muriatic.

For preparing this acid, one part of nitric and two of muriatic acid are to be mixed and kept in a stopper bottle in a cool, dark place. It has a suffocating smell, and is of a pale yellow colour. Its properties are stimulant and antiseptic: largely diluted, it has been strongly recommended in malignant scarlet fever, and syphilis; and still more diluted, as a bath in chronic derangement of the liver, and in some cutaneous affections. When it has been employed for any length of time, it often causes salivation, which is considered as a beneficial effect.

Acid, Nitro-Muriatic, Bath

Is made by mixing four ounces of nitro-muriatic acid with three gallons of tepid water in a wooden foot bath. The feet should be kept immersed in the bath for a quarter of an hour, and afterwards rubbed well with flannel. Dr. Scott, of Bombay, says that when thus employed it acts like a charm during the passage of gall stones.

Acid, Sulphuric,

Properly diluted, is an excellent tonic, astringent, and refrigerant. It is given in dyspepsia, diabetes, and in all varieties of passive hemorrhage. It is advantageously used in gargles for putrid sore throat, in hectic colliquative sweats, in convalescence from fevers, and to arrest the progress of salivation; also in weakness and relaxation of the digestive organs, and as a collyrium in atonic ophthalmia. It is better when taken to be sucked through a quill, and the mouth should be carefully rinsed with water after each dose. As it is apt to occasion griping pains in the bowels, the addition of a small quantity of syrup of poppies will occasionally be advisable.

Dose.—Ten to forty drops largely diluted. As a gargle, ʒiij. of the diluted acid to water ℥viij.

Acid, Sulphuric, Diluted,

Is made by mixing five drachms of sulphuric acid with twenty ounces of water.

Two objects are accomplished by the dilution of sulphuric acid: it is purified and its dose is more easily apportioned; but it is a subject of regret that the strength of this preparation should so materially vary in the different pharmacopœias. The infusion of roses furnishes an elegant vehicle for its exhibition.

Acid, Tartaric.

Refrigerant, antiseptic, and slightly aperient. It is useful for making cooling drinks in inflammatory affections, fevers, and scurvy. Half a drachm of this acid, and the same quantity of carbonate of soda dissolved in half a pint of water, form an agreeable effervescing and slightly aperient draught.

Aloes.

There are three species of aloes.

1. The socotrine, or Cape aloes.
2. The common, or Barbadoes aloes.
3. The caballine, or horse aloes, which is employed only by farriers.

These varieties of aloes differ in their degree of purity, as well as in their sensible qualities. The *first* is the purest, and is in small pieces of reddish brown colour. The *second* is in large masses of a darker colour, with a much stronger and less pleasant odour than the former. The *third* is still more impure, and less powerful. All the three are characterised by an intensely bitter taste, which, in the socotrine, is accompanied by an aromatic flavour.

Aloes is a stomachic cathartic, emptying the large intestines without making the stools thin; emmenagogue, and anthelmintic; it likewise warms the habit, quickens the circulation, and promotes the uterine and hæmorrhoidal fluxes. It operates more slowly than most other medicines of this class. It is to the slowness with which aloes undergoes solution in the primæ viæ that it is indebted for the medicinal properties which mark its effects in cachectic and chlorotic cases, indigestion, habitual costiveness the consequence of sedentary occupations, torpor of the intestinal canal, &c. For this reason, it is better given in the form of a pill on going to bed: it is not likely to disturb the rest during the night. In combination with assafœtida, it becomes an eligible purgative, in the dyspepsy of old people; it is also well calculated to obviate the costiveness so generally produced by the use of opium.

Dose.—From grs. v. to xv. as a purge; when given as an emmenagogue or laxative, one or two grains twice or three times a day. No greater effect is produced by a large dose than by one comparatively moderate; its tendency, however, to irritate the rectum, renders it in many cases an objectionable remedy; and its sympathetic action on the uterus may occasionally produce mischief in irritable habits, while, under other conditions, it may, for reasons equally obvious, prove beneficial. Its long continued use is apt to bring on hemorrhoids; it is scarcely necessary, therefore, to remark that it is an improper cathartic in hemorrhoidal affections, pregnancy, &c.

The emmenagogue property of aloes is much increased by its combination with sulphate of iron; and its irritating action on the rectum and womb is counteracted by associating it with extract of hyoscyamus.

As a purgative, the pill is the best form for its exhibition; as a stomachic, the compound decoction, in combination with sal volatile or carbonate of soda, is preferable.

Alum.

Internally, tonic and astringent; and, in large doses, emetic and cathartic. It is beneficially given in diabetes, diarrhœa, leucorrhœa, internal hemorrhages, as bleeding from the nose, lungs, and womb; in intermittent fevers, &c. as also in hooping cough.—*Externally*, as collyria, gargles, injections, &c. When employed as a gargle, ʒj. of alum may be added to a pint of some astringent decoction, as that of oak or Angustura bark: as an injection in fluor albus a drachm to a pint of the former decoction is a good, and often an efficient form; though it would appear that astringent menstrua are decomposed by it. It is highly useful as a lotion in various kinds of ulcers, and particularly in spongy and swollen gums, and as an injection in uterine hemorrhage.

AMMONIA, CARBONATE OF,

Is a powerful stimulant, antispasmodic, antacid, and diaphoretic. It is beneficial in various convulsive disorders, gouty acidity in the stomach, nervous affections, and debility. It is of great advantage where we wish to unite the effects of a stimulant and antacid, as in cardialgia (or heartburn), and flatulence arising from acidity in the stomach; but its exhibition is objectionable where there is a tendency to inflammation. Where flatulency is present, the liquid form of ammonia (sal volatile) is preferable to the carbonate, on account of the gas which is evolved from the latter when combining with the acid of the stomach. It is very serviceable in acidity from dyspepsia, and in those stomach affections which are the inevitable result of irregularity and frequent debauchery. With opium, it is a powerful resource in long-continued diarrhœa accompanied by weakness of the intestinal canal. In the muscular relaxation of chronic rheumatism, in large doses ammonia offers the best remedy; also in hoarseness depending on a relaxed state of the interior of the throat. In the form of smelling salts it is serviceable in faintness and hysteria.

AMMONIA, LIQUOR OR WATER OF.

This is rarely employed *internally*, although it may be used in doses of ten or twenty drops, largely diluted, as a powerful stimulant in asphyxia, gout in the stomach, palsy, &c. It has been successfully employed in the bites of venomous serpents: it is the basis of Eau de Luce. *Externally*, it is applied to the skin as a rubefacient, and in the form of gas to the nostrils, and to the eyes as a stimulant; in cases of torpor, paralysis, rheumatism, syncope, hysteria, and chronic ophthalmia, deep-seated inflammation, &c.

AMMONIA, MURIATE OF,

Is rarely used internally. Externally, while dissolving, it tends to diminish the heat and pain of inflammation: in the form of lotion, it is a powerful discutient in indolent tumours.

ANTIMONIAL POWDER

Is febrifuge, diaphoretic, and alterative. It is used in febrile and scrofulous diseases, acute rheumatism, gout, &c.

Dose.—Grs. iij. to viij. every three or four hours, assisted by plentiful dilution: in larger doses it operates as a purgative or emetic.

ANTIMONY, TARTARISED (*Tartar Emetic*),

Is the best antimonial for general purposes, and the most characteristic in its mode of operation. It is diaphoretic, expectorant, alterative, emetic. In asthma, catarrh, croup, pneumonia, hooping cough, and in the beginning of fevers and febrile diseases. It is from the production of nausea that antimony is so useful in the control of those disorders. Antimonial emetics not only empty the stomach, but also make a powerful impression on the system. *Externally*, it is stimulant, rubefacient: mixed with water, or in the form of ointment, ʒij. to ʒiij. to lard ℥j. in affections of the joints, deep-seated rheumatic pains, &c.

Doses.—If it be wished to produce diaphoresis or expectoration, the dose should be gr. $\frac{1}{8}$ to gr. $\frac{1}{2}$ every three or four hours. If for an emetic, gr. j. to iv. It should for this purpose always be administered in solution, and in divided doses, at short intervals; and at longer intervals when it is intended only to act on the skin or lungs. A small quantity of tartar emetic is a very useful addition to a purgative in robust and inflammatory habits; but is inappropriate in relaxed and feeble states of the system.

ANTIMONIAL WINE.

A solution of tartar emetic, in the proportion of two grains to each ounce of fluid. It is a most useful and manageable preparation.

Dose.—Fifteen to thirty minims.

It is admirably adapted to be taken in saline mixture as a diaphoretic, and in combination with expectorants in coughs. It is very inappropriate as an emetic for children, as its operation is usually followed by so much exhaustion.

Aromatic Confection.

A useful combination of various aromatics with sugar. It is stimulant, carminative, and antacid, and is frequently used in mild cases of diarrhœa, and where warm stimulants are necessary in union with ammonia and æther.

Arrow-Root Powder

Is a white, insipid light powder, procured from the arrow-root manufactured in the East and West Indies. The powder is a pure starch. It is rather an article of diet for invalids than a medicine. It is valuable in consequence of its emollient properties in disease of the digestive organs; it is also an excellent food for infants. A table-spoonful will form a stiff jelly with a pint of boiling water or milk. The arrow-root should be first carefully mixed with a small portion of cold water; the boiling water or milk should then be gradually added, stirring it well all the time, and lastly boiling it for a few minutes: it may be rendered palatable by the addition of loaf sugar, grated nutmeg, and lemon-peel, or a glass of sherry wine.

When given to invalids suffering from diarrhœa, a dessert spoonful of tincture of rhatany is a beneficial substitute for wine.

Arrow-root may be added to increase the nutritive property of beef-tea; it may be also made into blanche-mange and puddings.

Arsenic—The White Oxide of,

Is a strong irritant poison, a few grains being sufficient to occasion death.

When given in minute doses for a short time, it acts as a general tonic; but if its use be too long continued, or it be given in too large doses, it acts as a slow poison. It has been principally used internally in intermittent diseases, as in ague, neuralgia, chorea (or St. Vitus's dance), and periodic headache, with the most beneficial effect, after quina and the barks have failed. It is also a valuable medicine in chronic, scaly, cutaneous diseases, and in these latter cases it will often be required to be taken a long time: its use should therefore be occasionally suspended, and its operation strictly attended to. It is used externally in cancerous diseases of the skin. Dangerous symptoms are not so likely to occur from its absorption, when used in the form of ointment, in the proportion of one part of the arsenious acid (or white oxide) to seven parts of spermaceti ointment. The best form for its internal administration is Fowler's mineral solution, or the arsenical solution of the Pharmacopœia, in doses of four minims gradually increased to ten twice a day, in any light bitter infusion, as cascarilla.

The internal use of arsenic is improper in plethoric habits, or where there are any phthisical symptoms. In all cases where it is given, its effects should be carefully watched. Where there is a feeling of itching and redness of the eyes, puffiness of the eyelids or of the cheeks, soreness of the mouth, or disposition to vertigo, the dose should be diminished or its use suspended for a time: or when there are griping pains of the stomach, with nausea, vomiting, and headache, its use should be altogether laid aside, as a medicine not suited to the individual. It is less likely to irritate when given on a full stomach.

Assafœtida

Is a powerful stimulating antispasmodic, particularly adapted to the nervous and hysterical diseases of females, to be given either during the fit or in the intervals. In hysteric fits we are often unable to administer medicine by the mouth; in this case it will be found very efficacious administered as an enema. In the convulsions of infants, when dependent on flatulence, and in the flatulent constipation of the aged, it is a most useful remedy. It is also beneficial in the chronic stage of hooping-cough, in pure spasmodic asthma, and in the peculiarly spasmodic difficulty of breathing so commonly attendant on chronic catarrh in elderly people.

Dose.—From five to ten grains. (See Prescriptions.)

Asses' Milk—Artificial.

Take half an ounce of isinglass; dissolve it in a quart of warm barley water; add one ounce of refined sugar; then mix with a quart of new milk, and beat up altogether with a whisk. Another mode of preparing it is to take of eryngo root, pearl barley, and sago, of each one ounce; boil in two pints of water slowly to one pint; strain off the liquor; add one ounce of refined sugar, and mix with double the quantity of new milk.

Either preparation should be taken warm, and the best mode of warming it is to immerse the vessel containing it in a basin of hot water.

These are but very inferior substitutes for asses' milk; which is one of the best restorative nutrients in convalescence from severe diseases.

Balsam of Copaiva

Is of the consistence of olive oil, of a pale golden colour, of a fragrant odour, and aromatic bitter taste.

It is stimulant, diuretic, cathartic, detergent. It is given in gleet, leucorrhœa, hemorrhoidal affections, exulcerations in the urinary passage, from its acting here more powerfully than any other of the resinous fluids. It has been prescribed as an expectorant in chronic catarrh, with a view of inspissating the mucus in the bronchial tubes.

Dose.—From twenty drops to a drachm, three times a day. Half a drachm to every ounce of water, beat up with mucilage or the yolk of an egg, forms an elegant mixture; or it may be taken dropped in sugar

A considerable quantity of the balsam of copaiva sold is adulterated with rape, or linseed, or castor oil, and turpentine. Pure balsam of copaiba is soluble in pure alcohol and in æther.

As the taste is extremely disagreeable to many persons, it has been formed into capsules of gelatine, each containing ten drops; but the dose in this form is very uncertain.

Balsam, Friar's (*Compound Tincture of Benzoin*).

It is stimulant, expectorant, and antispasmodic, and is usefully given in old asthmatic cases and in phthisis with a languid circulation. Applied to wounds and torpid ulcers it stimulates gently, and protects them from the action of the air.

Dose, ʒss. to ʒij., rubbed up with the yolk of egg and any fluid.

Balsam of Peru.

A viscid liquid, of a reddish-brown colour, fragrant and aromatic smell, hot and bitter taste.

It is stimulant and tonic, and more heating and acrid than copaiba. It is given in some species of asthma, palsy, nervous diseases, gleets, suppression of the uterine discharges, &c. Externally, it is applied to wounds and languid ulcers; it is eminently useful as an ointment for cracked nipples; and where there is a constant fœtid discharge from the ear, it is recommended to mix the balsam with triple the quantity of ox-gall, and occasionally to drop a small quantity into the ear, previously syringing it with a weak solution of soap and water. Its usual form of exhibition is by diffusion in water with some mucilage, or made into pills with any vegetable powder.

Dose.—Grs. v. to ʒjss. three or four times a day in mucilage, or made into pills with vegetable powders.

Balsam of Tolu

Is a thick tenacious liquid, becoming concrete by age, in which state it is usually found in the shops; of a warm and sweetish taste, and extremely fragrant smell, resembling that of lemons.

It dissolves in alcohol, and forms a tincture with it, which is rendered milky by water, but no precipitate falls. If it be dissolved in the smallest quantity of a solution of potass, its odour is changed into one resembling clove pink.

It is stimulant and expectorant, and is given in asthma, chronic coughs, gleets, &c. It can seldom, with propriety, be used as an expectorant, on account of its stimulating properties. It may be exhibited suspended in water by means of mucilage or the yolk of an egg, but it is rarely employed, except on account of its agreeable flavour.

Bark, Peruvian (*Jesuit's Bark. Cinchona*).

Notwithstanding the labours of the Spanish botanists, the history of the varieties of the barks is in much confusion. Peruvian bark is the most highly esteemed and most frequently employed tonic in all cases of debility unaccompanied by a disposition to inflammation or hæmorrhage, and where the stomach and digestive organs are free from irritation. It is, in general, preferable to its alkaloids—quina and cinchonia—where there is any tendency to headache. Cinchona bark is seldom exhibited in the form of powder.

Dose.—As a tonic, from gr. x. to ℈ij. two or three times a day; as an anti-intermittent, from ʒj. to ʒij. every two or three hours: but few stomachs can bear such large doses. The powder is best taken mixed with milk. In those cases where the stomach cannot bear the bark in substance, the decoction is an excellent substitute, as is also the infusion. In cases of extreme irritability of the stomach the Liquor Cinchonæ of Battley is preferable to either. In intermittent fever (or ague) the quinine has some advantages over the bark, on account of the large doses of the latter which would be required in those cases.

Bark, Angustura (*Cusparia*),

Is an excellent tonic, without any astringency. It will be found serviceable in flatulence arising from dyspepsia, in diarrhœa, dysentery, and the bilious complaints which prevail in summer and autumn.

Dose.—Of the powder, grs. x. to ʒj.—In infusion, ʒj. to ʒij. of the bark to water ℥iv. daily.

Bark, Cabbage-Tree.

(See Cabbage-Tree Bark.)

Bark, Canella,

Is a stimulant and an aromatic tonic of some power. It is rarely administered alone, but is chiefly added to cathartics and other medicines. It is also one of the ingredients in the liquor called Usquebaugh, a useful compound for persons of gouty habit and those subject to cramp of the stomach. In America it is considered as a powerful antiscorbutic.

Dose.—Of the powdered bark, grs. x. to ʒss.

BARK, CASCARILLA.

In pieces curled, or rolled up like quills. Its fracture is smooth and close, of a dark brown colour. It has a light and agreeable smell, and when burning emits an odour like that of musk, which at once distinguishes it from all other barks: from this property it is much used as an ingredient in pastiles. Its taste is moderately bitter, with some aromatic pungency.

It is carminative and tonic. It is an excellent adjunct to Peruvian bark, rendering it, by its aromatic qualities, more agreeable to the stomach, and increasing its powers. It is valuable in dyspepsia and flatulent colic, in dysentery and diarrhœa, and in the gangrenous thrush peculiar to children. The best form of administering it is in infusion.

BARK, OAK,

Is a powerful and excellent astringent, and is beneficially employed in the treatment of chronic diarrhœa and dysentery, its properties depending on the presence of tannin: it is accordingly employed to check inordinate discharges, in the form of decoction; as a gargle in relaxation of the throat and tonsils, and as an injection in prolapsus of the womb and rectum. Decoction is by far the best form of using it.

Dose.—℥j. to ℥ij.

Oak bark is sometimes administered in the form of powder, combined with ginger and other aromatics, and bitters, for the cure of intermittents, and it has frequently succeeded.

Dose.—℈j. to ʒss.

BARK, POMEGRANATE,

Is a tonic and astringent. It is used in India as a remedy for tapeworm. It is also advantageously exhibited in protracted diarrhœa and dysentery. It is more commonly employed in the form of decoction as an injection in leucorrhœa, and also for gargles in relaxed uvula and tonsils.

Dose, in powder, ʒss. to ʒj.; in decoction, ℥ss. to ℥j.

BELLADONNA (*Deadly Nightshade*).

Powerfully narcotic and diaphoretic; in moderate doses anodyne and calmative, diminishing pain and over-excitement of the nervous system. The diseases in which it is more beneficially employed are painfully spasmodic and nervous affections, particularly tic douloureux, nervous palpitations, hooping-cough, severe pains of the anus and of the testicle, and painful glandular enlargements; it is also advantageous as a preventive in scarlatina. (See Scarlatina).

The best mode of exhibiting it is the extract, in doses varying from gr. $\frac{1}{8}$ to gr. ij.; or locally, in plasters, or in an ointment. Belladonna is most used in disorders of the eye: by rubbing a solution of extract round the orbit it causes dilatation of the pupil unattended with pain.

BISMUTH, SUBNITRATE OF.

A white, inodorous, tasteless powder, composed of oxide of bismuth in combination with some water, and a little nitric acid.

Bismuth appears to act specifically in painful affections of the stomach, more particularly when accompanied with nausea and vomiting, over which it seems to exert a sedative influence. It is beneficially combined with rhubarb or tincture of hops in chronic dyspepsia attended with pain or pyrosis.

Dose.—From gr. v. to gr. xx.

BLUE PILL (*Mercurial Pill*).

Alterative and cathartic.

In consequence of its general alterative powers, and the peculiar property it possesses of acting on the liver and stimulating the biliary secretions, it is usefully combined with the compound rhubarb or colocynth pill, with the addition of ipecacuanha.

Dose.—As an alterative, gr. ij. or gr. iij.; as an anti-syphilitic, doses of gr. v. twice or thrice a day.

BLUE STONE (*Sulphate of Copper*),

In large doses, if it be not rejected by vomiting, is a strong irritant poison. In small doses it acts as a tonic astringent in chronic diarrhœa and dysentery, after the unsuccessful trial of other astringents. Externally it is employed in destroying proud flesh; as a lotion to stimulate ill-conditioned and indolent ulcers where there is great discharge; as a lotion in chronic inflammation of the eyes; and as an injection in chronic mucous discharges from the urethra or vagina.

Dose.—Gr. ¼ to gr. ij. in a pill; for a lotion, gr. ij. to gr. x. in ℥j. of water; for an injection, gr. j. to gr. iv. in ℥j. of water.

BORAX.

Deobstruent and diuretic. It is rarely, however, used internally. Externally it is detergent in aphthous affections (thrush) of children, mixed with honey; also to sore nipples, and as a lotion in irritative secretions of the vagina, in the proportion of half an ounce to a pint of water.

Dose, when taken internally, gr. x. to ʒss.

BRANDISH'S ALKALINE SOLUTION

Is a tonic and antacid, and promotes digestion. It is of signal use in bilious complaints which are accompanied by a deposition of red gravel in the urine; in gouty and rheumatic habits, more particularly in the decline and in the intervals of the paroxysms of the former malady; also in complaints of the stomach attended with heartburn or water brash. It is of much benefit in eruptions of the skin when they are connected with acidity and other disorders of the stomach. It was considered a sovereign remedy, and is highly useful in scrofulous tumours; but it requires a steady perseverance in taking it for some time.

Dose.—ʒss. to ʒij. twice a day in beer or veal broth, or in some light bitter infusion.

In taking this medicine, its use should be occasionally suspended, as too protracted a course is apt to enfeeble the stomach and derange the digestive organs: on taking it again, a smaller dose should be commenced with.

A very good and elegant alterative is made by rubbing two drachms of coarsely powdered rhubarb in half-a-pint of Brandish's Solution; it forms a most useful tonic, antacid, and mild aperient: a teaspoonful in two or three ounces of water, ginger-tea, or light infusion of lemon-peel, may be taken twice a day.

Broom, the Tops and Seeds.

Cathartic, diuretic. The decoction of Broom tops is an excellent diuretic; the compound decoction of the Pharmacopœia scarcely ever fails to act on the kidneys, and its effect is increased by the addition of cream of tartar.

Dose.—℈j. to ʒj.—A decoction of the fresh broom tops (an ounce in a pint and a half of water boiled down to a pint) in doses of ℥ij. three or four times a day, is an eligible diuretic in dropsies.

Buchu, the Leaves,

Is a stimulating diuretic, and is useful as exciting the kidneys, and appears to act as a direct tonic to the mucous membrane of the urinary bladder. It is also of benefit in some forms of incontinence of urine. It is commonly exhibited in the form of infusion, in doses of from ℥j. to ℥ij. twice a day.

Burgundy Pitch

Forms a mildly stimulating plaster, in some habits causing a great degree of irritation, accompanied with a pimply eruption; in others producing a moist exudation from the surface to which it is applied. It will remain adherent for a considerable time, and is usefully applied to the loins in cases of lumbago.

Cabbage Tree Bark

Is an excellent vermifuge in cases of round worm, given with caution in doses of gr. x. to gr. xxx. of the powder night and morning; or, in infusion, of ʒss. in a pint of boiling water, of which one ounce may be given to an adult, or two drachms to a child. It is now seldom employed, in consequence of its occasionally causing violent vomiting and purging.

CAJEPUT OIL

Is a strong diffusible stimulant and antispasmodic. It has been much employed in hysteria and in various spasmodic affections, and was highly extolled, but without sufficient foundation, during the prevalence of Asiatic cholera. Externally it is used as an embrocation in gout and rheumatism and to weak joints.

Dose.—From ♏j. to ♏v. on a lump of sugar.

CALOMEL (*Chloride of Mercury*)

Is more extensively and more usefully employed than almost any other article in the materia medica. It is capable of curing every form of syphilis, providing it do not run off by stool; and in obstructions and hepatic affections it is, in well regulated doses, a valuable remedy. It is also diaphoretic, and is administered in the treatment of inflammatory and febrile diseases, generally in combination with antimonial powder, and also with opium, to prevent its running off by the bowels. It imparts force to many of the mild medicines, and moderates the severity of drastic ones. In larger doses it is one of our most efficient purgatives, especially when combined with other cathartics; and in the diseases of children it appears to be particularly eligible, and it is singular that infants generally can bear larger proportionate doses of it than adults.

Dose.—As an alterative, from half a grain to one grain night and morning; as a purgative, from grs. ij. to x. or more. It is best exhibited in the form of pill. To produce salivation, one grain of calomel combined with a sixth of a grain of opium, given every hour, will usually have the effect in from twelve to twenty-four hours, the patient being kept in a moderately warm atmosphere and observing a mild regimen.

Externally, it forms an excellent lotion in combination with lime (see Black Wash, Prescriptions, No. 146); also an ointment, in the proportion of ʒj. to lard, ℥j.

CALUMBA, THE ROOT.

This is one of the most valuable tonics and stomachics in the materia medica. It appears to be superior to many others, from not possessing astringent and stimulant powers, on which account it is extremely eligible in certain affections of the lungs and mesentery. It is most usefully administered in various forms of dyspepsia depending on deficient tone of the digestive organs, and in irritability of the stomach attended with vomiting. On account of its anti-emetic properties, it is admirably adapted to allay sympathetic vomiting in disorders of the viscera, and it is the best tonic in the latter stages of diarrhœa and dysentery. It may be given in combination with chalybeates, aromatics, saline purgatives, or with rhubarb, as circumstances may require.

Dose.—Of the powdered root, grs. xv. to ʒss.; of the infusion, which soon spoils, ℥iss. to ℥ij.

Officinal preparations.—Infusion of Calumba. Tincture of the same.

A well-prepared cold infusion is better than any other form for its exhibition.

Camphor

Is diaphoretic, antiseptic, stimulant, antispasmodic, narcotic, externally anodyne. In typhus, confluent small-pox, and in all fevers and eruptions of the typhoid type, measles, or the retrocession of the eruption, febrile delirium, hiccup, asthma, hysterics, epilepsy, atonic gout, mania, melancholy, acute rheumatism, &c. In moderate doses, camphor exhilarates without raising the pulse, and gives a tendency to perspiration; and under certain conditions of the body, when opium fails, it promotes sleep. As its effects are transient, the doses should be repeated at short intervals. Camphor is said to correct the bad effects of mezereon, cantharides, the drastic purges, and diuretics. In excessive doses, it occasions anxiety, vomiting, syncope, and delirium. These violent effects are best counteracted by opium.

Dose.—Grains v. to ℈j. frequently in pills, powders, or emulsions: subcarbonate of ammonia, lemon-juice, tartarized antimony, ether, aromatics, and the like, are often useful additions. In gangrene, combined with opium and volatile alkali, it has been administered with the best effects. It should be given in a state of minute division. The best general mode of its exhibition internally is in the form of mixture. For external application, it is mostly dissolved in spirits or oil, as an embrocation in rheumatic pains; and in the form of ointment (one drachm, reduced to a powder, to one ounce of lard) for chronic cutaneous diseases.

Castor.

This substance is secreted by the beaver in glands near the rectum. It was formerly in much repute as an anti-spasmodic and nervine, and is still much used in combination with other anti-hysteric remedies.

Dose.—In powder, from ten drachms to a scruple; or half a drachm to a drachm of the tincture.

Officinal Preparation.—Tincture of Castor.

Castor Oil.

The fixed oil of the seeds is obtained by expression with or without the aid of heat; that extracted without heat is called cold-drawn castor oil, and bears the higher character.

When fresh drawn, it is without smell, nearly insipid; colourless, or of a very pale straw colour; thick, but perfectly transparent; lighter than water. It becomes rancid by long keeping, deepens in colour to a reddish-brown, and has a hot nauseous taste.

It is mildly purgative. In colic, calculous complaints, and gravel, in cœliac passion, Devonshire colic, obstinate costiveness, hemorrhoids, dysentery, &c. It produces its effects without griping, and may be safely given to children and pregnant women; it may also be exhibited in the form of clyster.

Dose.—ʒij. to half an ounce in the form of emulsion, with some aromatic water, by means of mucilage, or the yolk of an egg, adding a little spirit; or floating on a glass of water, or peppermint water, or brandy and water, or hot coffee.

Caustic.

(See Silver, Nitrate of, and Potash.)

Catechu.

(Extract of the wood of Acacia Catechu, the fruit of which affords the betel nut.)

Catechu is a most valuable astringent. In hæmorrhage, diarrhœa, chronic dysentery, diabetes, leucorrhœa, thrush, hoarseness, and relaxation of the uvula and fauces; in which last it may be advantageously employed in the form of lozenges, as they dissolve gradually; and it is here sometimes found successful when the sulphate of zinc is ineffectual. From its great astringency it also forms an excellent dentifrice, especially in spongy gums: for this purpose, equal parts of catechu and Peruvian bark, with one-fourth of the powder of myrrh, may be employed. The tincture, also, applied to the sore nipples of nurses with a camel's hair pencil three or four times a day, is most beneficial. Public speakers and singers use catechu lozenges with great benefit as a preventive and as a remedy for hoarseness.

Dose.—Grs. x. to ʒj.; water and spirit almost totally dissolve it. Its astringency is destroyed by alkaline salts; the metallic salts, especially those of iron, produce precipitates; and with gelatine it forms an insoluble compound.

Officinal Preparations.—	DOSE.
Infusion of catechu . .	℥j. to ℥iij.
Tincture of catechu . .	ʒj. to ʒij.
Electuary of catechu . .	ʒss. to ʒiss.

Chalk, Prepared,

Is antacid and absorbent, on which account it is useful in acidities of the intestines and in diarrhœa, after removing all irritating matters by previous evacuation: for this purpose it is advantageously combined with aromatics or with opium. From its absorbent properties, it is a good external application to ulcers discharging a thin acrid matter.

Dose.—Grs. x. to ℈ij. or more. It must not be combined with acids.

Chamomile, the Flowers.

Chamomile is an aromatic or bitter tonic. It is eminently useful in those forms of dyspepsia which depend on want of tone of the stomach, for which a fresh light infusion is most appropriate, and is beneficially combined with some aromatic, as ginger or cloves. Chamomile flowers are commonly employed in the form of infusion—either by themselves, or together with poppy-heads or fennel seeds—for warm fomentation. A strong infusion applied cold is reputed to be efficacious as a lotion in weakness of the eyes.

CHIRETTA, THE HERB AND ROOT OF,

Is a powerful bitter tonic, without any astringency; it is therefore well adapted as a tonic in dyspepsia attended with torpid bowels, and, from its unirritating qualities, also as a tonic in pulmonary disease.

It is better given in infusion made with one drachm of Chiretta to a pint of boiling water, or two drachms to a pint of cold water.

Dose.—Of either one ounce: salts of iron may be exhibited with it when a strong bitter tonic is required.

COLCHICUM (*Meadow Saffron; the Root, Bulb, and Seed*)

Is a narcotic, diuretic, and cathartic, and is extensively used in gout and rheumatism. It is the active ingredient in the Eau Médicinale which some years since obtained a great degree of notoriety for the relief of gout. Administered during a paroxysm of gout, it rarely fails to curtail the fit, but it by no means prevents its return; and by many its frequent employment is considered to render the system more prone to be affected by the disease. It is beneficial in rheumatic gout and chronic rheumatism, and may be profitably combined with cathartics and diuretics, the efficacy of which it greatly increases.

Officinal Preparations.—Tincture, Wine, Vinegar, and Acetous Extract. It is rarely used in the form of powder, the dose of which is from 2 to 8 grains. Colchicum should be begun in moderate doses, and its effects watched.

COLOCYNTH, THE PULP (*Bitter Cucumber*).

The medullary substance, being that alone which is used medicinally, is light and white, spongy, with an intensely bitter and nauseous taste, and when dry, without smell.

Colocynth is a drastic purgative, and acts more particularly on the large intestines, promoting their secretions and increasing their vermicular motion: in large doses it is poisonous, producing inflammation of the bowels. In consequence of the violence of its action, it is never used except in union with other purgatives. In a state of combination it is most extensively and beneficially exhibited, mostly in the form of pill, and frequently dissolved in gruel as an enema. The powder is rarely or never given; but, sprinkled on a blistered surface denuded of the cuticle, it acts as a purgative.

Officinal preparation.—The Extract or Pill, of which the dose is from five to ten grains.

COPPER, SULPHATE OF.

(See BLUESTONE.)

CORROSIVE SUBLIMATE.

(See MERCURY, BICHLORIDE OF.)

CORSICAN MOSS

Has been used by the Corsicans for several centuries as a vermifuge, given in powder, in doses of from ten grains to two drachms, mixed with honey or treacle, night and morning; or in infusion (of one ounce and a half to a pint of boiling water), in doses of two drachms to half an ounce in milk; or in the form of the Corsican Moss jelly (which see in Prescriptions).

COWHAGE, OR COWITCH.

The stiff hairs which cover the pods have been found very efficacious as an anthelmintic or vermifuge. Its operation seems to be mechanical; the minute hairs wounding and irritating the worms, and obliging them to detach themselves from the coats of the bowels, which are defended by their mucous secretion.

Dose.—10 to 12 grains taken in the morning fasting, and going to bed, mixed in treacle, honey, or syrup. This must be continued three or four days, after which some brisk cathartic—as jalap, rhubarb, infusion of senna, calomel, &c.

—should be taken and repeated at intervals of three or four days.

CREASOTE.

Prepared from pyroligneous acid. It is employed both internally and externally, as a sedative, astringent, and styptic. It is of peculiarly good effect in sickness of the stomach; also in spitting of blood and catarrhal affection. It is advantageously employed in diseases of the skin in the form of ointment; and in asthma and irritation of the bronchi by shaking up thirty drops in a pint and a half of water at 150°, and inhaling the vapour through a tube. It is an efficacious remedy for allaying toothache, for which purpose a few drops must be applied in a concentrated state on a little cotton, the cavity of the tooth being first dried. Creasote is also an excellent preservative of meat. Immersion in creasote diluted with water (in the proportion of one part of creasote to eighty of water) will prevent flesh from decaying in warm moist air; and meats and fish may be thus more conveniently kept good than by smoking, by laying them in the dilute liquid for an hour or two, and then drying in the air: in eight days they will acquire the flavour of smoked meats. A few drops of creasote in a saucer, or on a piece of sponge, placed in a larder, will drive away insects and tend to protect the meats.

CROTON OIL.

The expressed oil from the seeds of Croton Tiglium. It is an acrid cathartic and rubefacient, quick in its operation, and generally producing frequent watery evacuations unaccompanied by griping. It is particularly useful in obstinate constipation, in convulsions, and in comatose affections. It should not be prescribed in cases of extreme debility, or where there is a tendency to inflammation in the digestive organs. Its value is increased from the facility with which it may be administered; in some cases it is amply sufficient to touch the tongue, in others a drop or two will be required. In maniacs, and in cases where the administration of bulky medicines is extremely difficult, it appears to offer a decided advantage. In some cases, a drop applied to the tongue has occasioned several loose watery fluids, and one or two drops have produced an alarming over-purging. It is better never to give it in a fluid form, from its extremely acrid taste. In general it is preferable to combine it with other purgatives, and administer it in divided doses. It forms an excellent rubefacient in the proportion of one part to seven of olive oil, and speedily produces a pustular eruption. In a more diluted form, rubbed on the abdomen, it will act as an aperient.

Dose.—From 1 to 2 drops, made into pills with extract of liquorice or crumb of bread.

CUBEBS

Is stimulant, carminative, diuretic, and purgative. It exercises a peculiar influence on the urinary organs, and is almost a specific in gonorrhœa in the early stage; but if it fails to produce a beneficial effect after a few days its use should be suspended.

Dose.—From 1 scruple to 3 drachms three times a day. The preferable mode of giving it is in combination with confection of senna or honey, or it may be mixed with milk.

Officinal Preparation.—The Oil and Tincture. Neither is so effectual as the powder.

DANDELION, THE ROOT.

It operates as a diuretic and diaphoretic, and is mildly aperient. It is in most repute as an alterative in chronic affections of the liver, jaundice, and diseases of the skin. It is best adapted to those cases where there is a deficiency of bile; and it is also a valuable remedy in disordered digestion arising from the disturbed functions of the small intestines.

The best mode of administering it is in the form of decoction. Four ounces of the full-grown root should be sliced, and boiled gently in two pints of water down to one pint, of which half a pint should be taken daily. Where an aperient effect is required, two or three drachms of cream of tartar should be added to the decoction while boiling hot.

The extract, when fresh, is also a good form.

Dose.—10 grains to half a drachm three times a day.

DIGITALIS (*Foxglove, the leaves*).

Sedative and diuretic. Digitalis, in small continuous doses gradually augmented, acts on the kidneys, increasing the secretion of urine. In larger doses, when it is administered for a long period, it acts as a direct sedative to the circulating system; hence it is beneficially exhibited in various forms of dropsy; and by its action on the heart it diminishes fulness of the venous system and favours the absorption of effused fluids. As it is apt to accumulate in the system its effects should be carefully watched, or fatal syncope may be the consequence of its continued use.

Dose and mode of administration.—From half a grain of the powder, or from ten to fifteen minims of the tincture, every six hours. Its operation is assisted by mild diluents, the surface of the body being kept cool. The best form of exhibiting digitalis in acute diseases is the infusion, of which from two to four drachms may be given every six hours, and during its use the patient should be most carefully watched.

DOVER'S POWDER (*Compound Powder of Ipecacuanha*).

Narcotic and diaphoretic. It is one of the most generally employed diaphoretics. It is peculiarly adapted for catarrh and acute rheumatism, and is beneficially combined with saline medicines for the former, and with calomel for the latter disorder. Its use is contra-indicated where the stomach is irritable, or where there are comatose symptoms.

Dose.—From 5 to 10 grains. It is better given in the form of pill.

Every ten grains contain one grain of opium and one of ipecacuanha.

EPSOM SALTS (*Sulphate of Magnesia)*

Is a cooling saline aperient. Its operation is mild and effective, increasing the intestinal secretions: the evacuations are usually watery, and are unaccompanied by nausea or griping. It is the most generally used of all the saline aperients, and is particularly adapted for inflammatory affections, for which purpose it may be given in small doses, in combination with other saline medicines: it may also be conveniently given with tonics to promote a gentle action of the bowels.

Dose.—ʒij. to ℥ss. dissolved in water, as a purgative. Its aperient properties are increased by dilution. An elegant form for its exhibition is in the compound infusion of roses, in combination with salines or tonics: from one scruple to a drachm may be taken every six or eight hours. It is usefully added to aperient enemas; and a solution of ℥j. dissolved in a pint of warm water is a good injection in cases of ascarides, or thread-worm.

Ergot of Rye (*Spurred Rye*)

Is a diseased production of rye, from the third of an inch to half an inch in length, retaining the longitudinal depression similar to the sound grain, and curved like the spur of a cock,—whence its name. It is a specific stimulant to the womb, and almost the only excitant employed to rouse the action of that organ in lingering labour dependent on its inefficient action.

It is said to be useful in leucorrhœa, or whites; as also in some varieties of hæmorrhage from the womb, where such diseases are owing to a relaxed state of the organ. It is a medicine capable of doing *irremediable mischief* when injudiciously given. During labour, the dose is one scruple of the powder in water or warm coffee, which may be repeated if required every half-hour for *three* doses; or two drachms may be infused in six ounces of boiling water for twenty minutes, and the infusion, when cold, strained, and a fourth part given for a dose Its administration is rarely or never admissible in first labours; and it should not be used except in cases of decided inefficient action of the womb, in lingering labours, and where there is no rigidity of the parts or mechanical obstruction of any kind, nor malposition of the head.

Ether, Nitric.

(See Spirit of Nitric Ether.)

Ether, Sulphuric,

Is a stimulant, antispasmodic, and narcotic. Taken internally, in moderate doses, it is a generally diffusible stimulant, and its effects, which are quickly produced, are equally transitory, It is highly serviceable in spasmodic and hysterical affections,—as cramp of the stomach, flatulent colic, spasmodic asthma, palpitations, fainting fits,—and nervous complaints of all kinds, provided there is no inflammatory action present. Externally applied, it produces a great degree of cold from its quick evaporation, and thus often relieves partial headaches.

Medium dose.—Half a drachm to a drachm. As its effects soon disappear, a repetition of the dose at short intervals is more efficient than a larger dose given at once.

FERN, MALE.

The powder of the Male Fern root is one of the most efficacious vermifuges we possess. It kills the worms, as in all cases they are discharged dead. From one to three drachms should be taken in the morning early, and followed, two hours after, by an active purgative. Male Fern formed the basis of the celebrated Worm Medicine of Madame Nouffer.

GALLS (*Gall Nuts*).

Galls are among the most powerful vegetable astringents. They are seldom used internally, but may be employed in chronic diarrhœa and dysentery; also in passive hæmorrhages, in gleet, and leucorrhœa. Externally they are employed with much benefit in the form of lotion, ointment, and pills.

Officinal Preparations.—Tincture, Ointment, and Decoction of Galls.

GARLIC.

Garlic is reputed an excellent remedy in ascarides. It may be given in infusion by the mouth, or in clysters, and at the same time a poultice of it may be applied to the pit of the stomach. A clove of garlic, wrapped in gauze and put in the ear, is useful in nervous deafness.

GALBANUM (or *Galbanum gum resin*)

Is an antispasmodic, deobstruent, and resolvent or discutient. It is given internally in hysteria, particularly when connected with irregular menstruation, and applied externally as a discutient for indolent tumours.

Officinal Preparations.—Pill and Plaster.

GAMBOGE (or *Camboge gum resin*)

Is a drastic purgative, and is mostly administered in combination with other purgatives.

Officinal Preparation.—Compound Gamboge Pill.

GENTIAN, THE ROOT,

Is an excellent bitter tonic with some aperient properties, and is beneficially given in dyspepsia accompanied by feeble digestion and acid secretions. It is usefully combined with ammonia.

Officinal Preparations.—Infusion and Tincture.

GLAUBER'S SALTS (*Sulphate of Soda*).

A saline aperient, resembling in its operation Epsom salts, and applicable to the same cases, but less agreeable to the taste. The two salts are sometimes usefully combined.

Dose.—Half an ounce to twelve drachms dissolved in water.

GLYCERINE.

This is the sweet principle of oils produced during saponification. It is used as an external application in scaly diseases of the skin to keep the parts moist; and also, in cases of deafness, it is applied to the ear passage, by means of a hair pencil, where there is a deficient ceruminous secretion.

GOAT'S MILK—ARTIFICIAL.

Take one ounce of fresh suet; cut it into very small pieces, and tie them in a muslin bag large enough to leave the morsels free from compression; boil gently in two pints of cow's milk, and add a quarter of an ounce of white sugar-candy.

This is an excellent nutritive article of diet in scrofulous emaciation, when ordinary food passes through the bowels nearly undigested: it is also useful in the latter stages of pulmonary consumption.

GOULARD'S EXTRACT (*Solution of Diacetate of Lead*).

Used externally, diluted with water, for a lotion, as a refrigerant and astringent, in various proportions, but principally in the form of

GOULARD'S LOTION (*Goulard Water*),

A dilution of the extract or a solution of the acetate (or sugar) of lead, in the proportion of about 1 part to 40 of water; and still more diluted for collyria or eye lotions. Goulard's lotion is one of the best general applications to burns and scalds and for local inflammations.

GUAIACUM, THE WOOD AND RESIN.

Stimulant and diaphoretic. The wood is principally used in cutaneous diseases, in combination with sarsaparilla. The resin is beneficially administered in rheumatism.

Officinal Preparations.—Tincture of Guaiacum, Mixture of Guaiacum.

GUM ARABIC (*Acacia gum*)

Is nutritive, emollient, and demulcent. It is employed with advantage in all inflammatory disorders, particularly of the mucous membrane and of the urinary organs.

Dose.—Half a drachm to a drachm.

Officinal Preparation.—Mucilage or Mixture of Acacia.

GUM AMMONIAC.

A mild stimulant, antispasmodic, expectorant, and externally discutient. It is beneficially exhibited, mostly with some preparation of squills, in asthma and chronic catarrh; externally as a plaster, in chronic swellings, particularly of the joints.

Dose.—Ten grains to half a drachm.

Officinal Preparations.—Mixture or Emulsion of Gum Ammoniac, Plaster of Ammoniac.

HARTSHORN SHAVINGS.

Boiled with water they form a jelly similar to that made from cow-heel and calves' feet, which may be usefully added as a nutrient to coffee, milk, &c. Equal parts of hartshorn jelly and cow's milk are a good substitute for breast milk for infants who are brought up by hand.

HEMLOCK, THE LEAVES AND FRUIT.

Hemlock is a very useful sedative and narcotic. The decoction is used externally as a fomentation; and the bruised leaves, or the powder added to linseed meal, as a poultice in scrofulous tumours. It is generally given internally in the form of extract, prepared from the inspissated juice, made into pills; or in solution in nervous and pulmonary affections, and in hooping-cough.

Dose.—1 grain of the powder or extract, or from 10 to 30 drops of the tincture.

Officinal Preparations.—Extract and Tincture.

HENBANE, THE LEAVES AND SEEDS.

Narcotic, anodyne, and calmative. It promotes sleep rather by diminishing irritability and allaying pain than by any direct action on the nervous system. In combination with purgatives it is most useful; it obviates their griping effect without diminishing their aperient properties.

Officinal Preparations.—The Powder, Extract, and Tincture.

Dose.—The powder or extract, from 2 to 10 grains; the tincture 20 minims to a drachm.

HIERA PICRA.

Powdered aloes with canella. This was formerly much used in domestic practice as an emmenagogue, and is a very excellent aperient at the first cessation of the menses (or turn of life, as it is called). It is a warm cathartic.

Dose.—10 grains to half a drachm.

HOPS.

Narcotic and tonic. Hops will often produce sleep in the watchfulness of mania; and are also a useful anodyne in gout and rheumatism, and disorders of the stomach where other narcotics cannot be borne.

Officinal Preparations.—Infusion, Extract, and Tincture.

Dose.—Of the infusion, half an ounce to 2 ounces; of the extract, 10 grains to a scruple; of the tincture, half a drachm to 1 drachm.

A pillow stuffed with hops has been much employed as an anodyne.

ICELAND MOSS.

A mildly bitter tonic, demulcent, and purgative. It is used as an article of diet in Iceland, and is very beneficially given during convalescence in cases of debility after acute diseases. Its bitter principle is got rid of by first steeping it in some weak alkaline solution,—as that of carbonate of potash, in the proportion of a drachm to two quarts of water,—and then boiling it with milk, and adding to it chocolate or cocoa; or it may be prepared as other jellies, with wine, &c. By ridding it of its bitter principle, its tonic properties are taken away, its demulcent and nutritive ones remaining.

Officinal Preparations.—Decoction (Decoctum Cetrariæ).

Dose—Half an ounce to 2 ounces of the decoction, three or four times a day, is an excellent demulcent in chronic coughs, and a nutrient in emaciation arising from any cause of disease.

IODINE.

An elementary body discovered in the mother-water of soda, and obtained from sea-weed. It is a special stimulant, and a most useful agent in the treatment of glandular swellings (not scirrhous), and all varieties of scrofula. In bronchitis its application is eminently successful; also in chronic enlargements of the abdominal viscera, especially of the liver, in which it is advantageously combined with mercury. Locally, it may be applied, in the form of tincture, to enlarged tonsils, and to chronic swellings of the joints, either in the form of tincture or ointment. It is also an excellent emmenagogue in combination with iron, and is valuable in syphiloid diseases, united with mercury. Iodine is scarcely ever prescribed alone, but usually in combination with potash, iron mercury, or arseniate of potash.

Iodine and its compounds should be cautiously administered, and their effects carefully watched. When its use is long persisted in, an alarming train of symptoms will sometimes supervene, characterised by vertigo, nausea, syncope, extreme depression, and sometimes death; its exhibition should, therefore, be occasionally suspended.

Officinal Preparations.—Tincture of Iodine, Solution of Iodide of Potash, Ointment, &c.

IPECACUANHA, THE ROOT.

Emetic in large doses, diaphoretic and expectorant in moderate ones. Its most obvious effect is that of an emetic, more mild and more protracted in its operation than tartar-emetic; it is less depressing in its consequences, and it is therefore more appropriate for children. The two are advantageously combined for an adult, as the operation is thereby quickened, and it is also more likely to act on the bowels. Ipecacuanha is preferable as an emetic where there is any irritation or inflammation of the digestive organs. In small repeated doses it is a most useful expectorant, particularly in the coughs of children, when its effects are better if it produces nausea, and occasionally vomiting: the second or third dose will rarely cause vomiting. In cases of chronic bronchitis accompanied with copious secretion it acts most beneficially, not by promoting expectoration, but, on the contrary, the secretion will be diminished, and the healthy action of the air-passages restored, apparently by some specific action. Its diaphoretic powers are most usefully shown in Dover's Powder, and in small doses of the wine combined with salines. It is also an excellent counter-irritant in the form of liniment, producing a crop of eruptions.

Officinal Preparations.—The Compound Powder, Wine, and Liniment.

Dose.—As an emetic, one scruple to half a drachm; as a diaphoretic or alterative, one-fourth of a grain to a grain.

IRON.

The preparations of iron are all oxides and salts, commonly called *Steel* or *Chalybeates*. They are all useful, whether in the crude metallic, or perfectly or imperfectly oxidated state. In the crude form, the effect is generally to increase the appetite and digestive powers, to blacken the fæces, to render the urine somewhat higher coloured; and if there be acidity in the primæ viæ, it is corrected and extricated in the form of sulphuretted or phosphuretted hydrogen gas. The more acid there is in the stomach, the more efficacious is iron in its crude state: it must be oxidated before it can affect the living body. Iron gives tone and vigour to the whole system, and a florid colour to all who take it for any length of time. It is particularly useful in all chronic diseases.

When iron in any of its preparations has been given in too large doses, or persisted in for too great a length of time, it is apt to cause a state of general excitement, marked by a sensation of fulness of the head and a degree of giddiness. The administration of iron in any of its forms is contra-indicated in full and inflammatory habits, in those disposed to a determination of blood to the head, or who have a tendency to active hæmorrhages. Those diseases in which it is applicable are all such as show a deficiency of red blood, or in which there are evidences of direct debility, or in cases of passive hæmorrhage, nervous and hysterical affections, or feebleness of the digestive organs, scrofula, &c.

Iron, Filings and Wire of.

Tonic, stimulant, emmenagogue, anthelmintic, &c. In chlorosis and amenorrhœa, where the circulation is languid, and the countenance pale; in dyspepsia, hysteria, dropsy, and other cachectic diseases, passive hæmorrhages, rickets, scrofula, intermittents, general debility, worms, &c.

Dose.—Grs. v. to ʒss. joined with aromatics, bitter extracts, myrrh, soap, or in the form of electuary, with treacle or honey. Iron filings were formerly much employed in medicine; their use is now entirely superseded by the different ferruginous preparations: the most important are as follows:—

IRON, WINE OF (*Steel Wine*).

This is the most simple, most manageable, and perhaps the most useful of all the preparations of iron, and particularly appropriate for children.

Dose.—One drachm to half an ounce.

IRON, AMMONIO-TARTRATE OF.

An excellent preparation of iron, without astringency, and not of a disagreeable taste; applicable in uterine diseases.

Dose.—5 to 8 grains in solution, or made into an electuary with honey.

IRON, AMMONIO-CITRATE OF.

Applicable to the same purposes as the ammonio-tartrate. This preparation is usefully combined with quinine.

IRON, AMMONIO-CITRATE OF, WITH QUININE.

A very elegant preparation, and beneficially exhibited where a bitter tonic is required with iron.

Dose.—From 3 to 10 grains in solution.

IRON, CARBONATE OF (*Sesqui-oxide of Iron*),

Is a good chalybeate tonic, and has much repute for the cure of neuralgic affections, tic douloureux particularly, and is useful in giving tone to the bowels, and eventually obviating their costive state. The principal objection to it is its bulk and insolubility.

Dose.—Half a drachm to half an ounce, three or four times a day, in combination with honey, treacle, or confection of orange-peel.

IRON, IODIDE OF.

A combination of iron and iodine. It is a most excellent tonic in cases of scrofulous debility, strumous swellings, incipient cancer, deficient menstruation from debility, tumid abdomen from diseased mesenteric glands, secondary syphilis, and in scrofulous subjects. It cannot be prescribed in the solid form; and, from its proneness to undergo decomposition, it is better kept in a state of solution, in the proportion of three grains to a drachm of water, and a coil of iron wire—as a bell spring—should be kept in the bottle with it.

The *dose* of the iodide of iron is from 2 to 5 grains.

An elegant form, and in which the iodide is well preserved, is the

Syrup of Iodide of Iron,

The *dose* of which is from 15 minims to a drachm.

Iron, Muriated Tincture of.

Tincture of muriate of iron is much esteemed as a tonic; it has also great astringent properties, and has some specific influence over the urinary organs. It is useful in irritability of the bladder, and in retention of urine depending on spasmodic stricture of the urethra, in which it should be given in doses of ten minims, repeated every ten or fifteen minutes, to the extent of six or eight doses; beyond this it is apt to cause much uneasiness. It is a good tonic astringent in both spitting and vomiting of blood. It is also an excellent local styptic applied to bleeding vessels in loose fungous sores.

Iron, Sulphate of (*Green Vitriol*),

In large doses, is poisonous. Taken in small repeated doses, it acts as a tonic and astringent: with the latter intention it is employed in passive hæmorrhages, in chronic diarrhœa and dysentery; it is also an excellent emmenagogue and anthelmintic.

Dose.—From grs. j. to gr. v.

Officinal Preparations.—Compound Steel Pill and Compound Steel Mixture.

The compound mixture is apt to spoil if made long and exposed to the air. If used when fresh made, it is a most valuable tonic emmenagogue, in doses of one ounce twice or thrice a day.

Iron, Tartarized.

Applicable to the same purposes as the ammonio-tartrate.

JALAP, THE ROOT.

A stimulating cathartic, acting principally on the colon, and, notwithstanding the griping pains it may sometimes occasion, it is no less safe than efficacious. As a hydragogue purgative it has been greatly extolled, but for such a purpose it will answer better in combination with calomel, and given in the form of bolus. The action of jalap is said to be promoted by the addition of ipecacuanha or tartarized antimony. In dropsy, its combination with super-tartrate of potash is calculated to promote its beneficial operation.

It is best administered in the form of powder, especially when combined with some other powdered substance: pulverization increases its activity.

Dose.—10 grains to half a drachm.

Officinal Prpearation.—Compound Powder of Jalap. This is by far the best form for its exhibition. *Dose.*—Half a drachm to a drachm.

JUNIPER, THE TOPS AND BERRIES,

Is stimulating and diuretic, increasing the secretion of urine, to which it imparts its peculiar smell. It is generally used as an addition to other diuretics in dropsies.

Officinal Preparation.—Compound Spirit of Juniper.

KINO.

Tonic and astringent; applicable to the same cases as catechu. As it is more tonic, it is preferable where debility prevails, as also in excessive menstruation and leucorrhœa.

Dose.—10 to 20 grains.

Officinal Preparations. — Compound Powder and Compound Tincture of Kino.

KOUSSO

Is a most efficient remedy for tape-worm; of recent introduction into England. Its operation is safe and certain, and the worm is usually expelled in about twelve hours.

Dose, &c.—Half an ounce of the powdered flowers is to be mixed with about ten ounces of hot water and infused for a quarter of an hour; the whole, powder and liquid, is then to be taken in two or three draughts. Each may be washed down with a glass of lemon-juice and cold water. To favour its operation, tea without milk or sugar is to be taken. Should it not operate in three or four hours, a purgative—as a compound senna draught, or a dose of castor oil—should be administered. The Kousso should be taken in the morning fasting, and a saline aperient—as half an ounce of Epsom salts—taken the preceding evening.

LACTUCARIUM (*Lettuce-Opium*)

Is the inspissated juice of the lettuce, that of the wild lettuce being the stronger. It is a very mild unirritating anodyne, not, however, very certain in its operation, and soon losing its effect by repetition. It may be beneficially given to tranquillize the cough in consumptive patients, either in combination with demulcents, or in an efficient dose at bed-time.

Dose.—5 grains to 20, either in the form of pill or in solution.

LAVENDER, COMPOUND TINCTURE OF,

Usually called *Lavender Drops*, is employed as a cordial and stomachic in fainting, and to relieve flatulence and depression of spirits.

Dose.—Half a drachm to 2 drachms, in water or on sugar.

LAUDANUM (*Tincture of Opium*).

Narcotic, sedative, antispasmodic. This is the best form, for all general purposes, in which to administer opium, and when judiciously employed is one of the most valuable medicines we possess to relieve pain wherever situated, to diminish irritation, and to procure sleep. In spasmodic colic it will, by relaxing spasm, often prevent inflammation of the bowels. The mode, or vehicle, in which it is given is of some importance. In cases of spasm, it is better given in brandy and water, or together with sal volatile or ether; in fever, in saline medicine, at a time when moisture appears on the skin; in diarrhœa and dysentery it should be administered combined with starch, as a clyster. It may be externally applied, by rubbing it on the surface by itself, or combined with camphorated liniment, in local pains or spasms.

Dose.—From 10 to 25 minims, or, in cases of violent spasm, to 50 minims. (See OPIUM.)

LEAD, ACETATE OF.

(See SUGAR OF LEAD.)

LEECHES

Are extremely valuable for the local abstraction of blood, though, where cupping is admissible, it is to be preferred, as the quantity of blood required to be taken can be ascertained with more precision, and the flow of blood immediately arrested.

To facilitate the application of leeches the part should be well cleaned and dried, and the leeches also well dried by letting them crawl over a clean dry cloth. Should the part be very hot on which the leeches are to be placed, they should be first immersed in *very slightly tepid water*: this should also be observed when leeches are used inside the mouth. The leeches, when dried, may be applied under an inverted glass; or a napkin may be folded, and a small hollow made in the middle of it with the points of the fingers, into which the dried leeches are to be placed, and then held to the part, and the hand kept over the napkin until all the leeches bite, when it may be removed. A gauze wire leech-tube or case is a useful instrument for this purpose. When leeches are applied to soft parts, and a warm poultice placed over the bites, a larger quantity of blood may flow than is desirable, and injurious symptoms of exhaustion may ensue; the poultice should, therefore, be carefully examined at intervals to guard against this occurrence. To arrest the bleeding, when necessary, small bits of dry lint placed over each bite, and well pressed on, will, under general circumstances, be sufficient; or a little *finely powdered alum* should be sprinkled on the bites. Should this not succeed, a piece of lunar caustic scraped to a point should be applied to each bite, the part being dried first by a towel or portion of lint.

On account of the occasional difficulty of stopping the bleeding, it is advisable never to apply leeches to children at night, except in extreme cases, as instances are said to have occurred in which death has followed the loss of blood from this cause.

When a leech is gorged with blood it falls off. This commonly takes place in the course of a quarter of an hour; but now and then it will remain stationary without drawing, when a little cold water sprinkled on it will generally rouse it. Leeches should in general be permitted to drop off spontaneously; when they do so they should be put into water slightly salted, and, when they have disgorged the blood, thrown into clean water. When it is desirable to remove them, it is better effected by sprinkling a little salt on them, as the forcible removal of them while sucking is frequently followed by erysipelatous inflammation of the skin, which is said to be caused by the teeth of the animal being separated and left in the wound.

Lime Water

Is a useful antacid in those forms of dyspepsia in which there is great irritability of the stomach accompanied by copious secretion of acid; also in diarrhœa and dysentery with slimy motions. Mixed with milk, in the proportion of one part of lime water to two of milk, it is very beneficial as a diet in dyspepsia accompanied by vomiting of food. It is most conveniently given with milk, which disguises its disagreeable taste; but it may be given alone. When lime water has to be taken for any length of time, its use should be discontinued at intervals.

Linseed (*Flax-seed Meal and Oil*).

Emollient and demulcent. An infusion of the seed is a useful demulcent drink in catarrh and all bronchial affections. It is good as an application to irritable sores, and also as an emollient enema. The meal is employed for stimulating poultices; and the oil mixed with lime water is an excellent remedy for recent burns.

Lobelia (*Indian Tobacco*).

Sedative, expectorant, and antispasmodic. In small doses it is a valuable sedative expectorant, apparently possessing a specific influence in allaying spasm of the respiratory organs: hence it is conspicuously beneficial in asthma. The tincture, or ethereal tincture, are the most useful forms for exhibiting it, in doses of from 15 to 30 minims frequently repeated during the paroxysm. The simple tincture has been sometimes given beneficially in doses of a tablespoonful after the lesser ones have failed of success. Whitlaw's Ethereal Tincture is very much extolled by some in spasmodic asthma, in doses of from 5 to 20 minims in water or camphor mixture.

Logwood

Is a good tonic astringent in chronic diarrhœa and dysentery, for which it is especially adapted, as, although it arrests the excessive discharge, it does not produce constipation. It is also beneficial in the sweating of consumption. The best form of giving it is in decoction, in doses of from ℥j. to ℥ij. frequently.

Magnesia, Calcined.

Antacid, and, where acidity prevails, purgative. Whenever the bowels are distended with wind, it is preferable to the carbonate.

Mixed in water with some sal volatile, taken just before the meals, it is very efficacious in heartburn. In the acidity attendant on infantile diseases, and to persons of gouty and rheumatic habits, it is extremely beneficial. Magnesia given in full doses,—as from one to three scruples,—is a mild laxative, but is uncertain in its operation; it is therefore better combined with rhubarb, or other mild aperients. When taken for a long period it is apt to accumulate, and form concretions in the bowels.

Dose.—As an antacid, ten to fifteen grains twice a day in spearmint water.

Magnesia, Carbonate of (*Common Magnesia*).

Antacid and purgative. In cases of calculous diseases it is thought to be more useful than the alkalies. It is also beneficial in the same cases as the calcined, except where much flatus is present. A mild effervescing draught is made by mixing one drachm of carbonate of magnesia with two tablespoonfuls of water, and then adding a tablespoonful of fresh lemon-juice. It is more agreeable if small portions of powdered sugar and grated nutmeg are mixed with the magnesia and water previously to adding the lemon-juice.

MAGNESIA, SULPHATE OF.

(See EPSOM SALTS.)

MANNA.

The concrete juice of the ash growing in Sicily and the Southern parts of Europe. A similar juice may be obtained from the larch tree. It exudes from every part of the tree; but for a more abundant supply incisions are made through the bark, whence it flows more freely, and is soon inspissated by the heat of the sun.

A mild laxative, appropriate only for children or weak persons; generally requiring some laxative auxiliary, as castor oil, with which it may be combined, through the medium of mucilage.

Dose.—For children, ʒj. to ʒiij. in warm milk.

MARSH MALLOW, THE LEAVES AND ROOT.

Emollient and demulcent. Marsh mallow is in much repute abroad, but not in this country. It is beneficially administered in the form of decoction. In pulmonary complaints, in disorders of the alimentary canal, and of the urinary organs, it may be taken *ad libitum.* The decoction is employed for fomentations, and also for enemas.

MASTICH

Is employed to fill up the cavities of carious teeth; a solution of it in oil of turpentine is sold for the cure of toothache. The Turkish and Armenian women use it as a masticatory for cleaning the teeth, stimulating the salivary glands, and imparting an agreeable odour to the breath.

MATICO, THE LEAVES.

A powerful styptic astringent. It is very useful in chronic dysentery and diarrhœa, more particularly where there is a tendency to loss of blood; indeed, in all hæmorrhagic diseases. In these cases it is best exhibited in the form of infusion. The tincture, mixed with water, forms a very good tonic astringent lotion for the mouth. Externally, the underside of the leaf, or the powder, applied to bleeding surfaces, cuts, or leech-bites, will arrest the bleeding. After cleansing the leech-bites the under part of the leaf should be applied, and kept closely pressed on the part until it adheres firmly.

Dose.—Of the powder, ten grains to half a drachm; of the infusion, prepared by infusing one ounce of the coarsely bruised leaves in a pint of hot water, one ounce may be taken three or four times a day; of the tincture, prepared with two ounces to one pint of the proof spirit, one to two drachms for a dose.

MERCURY WITH CHALK (*Grey Powder*)

Consists of mercury oxidized by trituration and mixed with chalk. It is a mild and excellent mercurial alterative for correcting the deficient biliary secretions of children, when the stools are white or clay-coloured. It is a gentle aperient united with rhubarb, and, in cutaneous diseases, is very usefully exhibited in combination with dried carbonate of soda.

Dose.—From one to five grains.

MERCURY, BICHLORIDE OF (*Corrosive Sublimate*),

In doses of five grains, is a very active poison; but in small repeated doses it is employed as a mercurial in various diseases. Salivation is more slowly produced by it, and its effects are more decidedly alterative, than is the case with any other preparations of mercury. It is employed in secondary syphilis, severe cutaneous affections supposed to have a syphilitic origin, chronic rheumatism, gout, and various forms of scrofulous swellings of the joints and mesenteric glands. It is advantageously exhibited at the same time with vegetable alteratives,—as sarsaparilla, dandelion, and bark.

Dose.—One-twelfth of a grain, combined with the same portion of opium, and made into a pill with crumb of bread, or made into a pill with extract of poppies; or half a drachm of the solution of corrosive sublimate of the London Pharmacopœia may be taken, in three ounces of decoction of sarsaparilla, twice or thrice daily. When in a fluid form, it is better taken after a full meal, and its beneficial effect is increased by taking plentifully of diluent drinks during the day. Externally, the solution may be used as a lotion in lepra and psoriasis.

Officinal Preparation.—Solution of Bichloride of Mercury.

MERCURY, CHLORIDE OF.

(See CALOMEL.)

MERCURIAL PILL.

(See BLUE PILL.)

MILK, ARTIFICIAL.

(See ASS'S MILK AND GOAT'S MILK.)

MINDERERUS' SPIRIT.

(See SOLUTION OF ACETATE OF AMMONIA.)

MORPHIA.

The active principle of opium. Morphia is narcotic and excitant; but, being scarcely soluble, it is therefore prepared for medicinal use in the form of Acetate, Citrate, Bimeconate, Muriate, and Sulphate.

Of these the muriate is the preparation of morphia mostly employed. It possesses all the essential properties of opium, but is more purely anodyne, and less stimulating in its effects; it is also very beneficially employed through the medium of the skin. When applied in this way, the cuticle is first to be removed by means of a blister, and one or two grains sprinkled on the denuded surface.

Morphia is sometimes taken mixed with an equal quantity of powdered gum arabic. A watery solution of the muriate may be applied by inoculation with a lancet on the surface of painful parts, as in sciatica, tic douloureux, &c.

Dose.—Of the muriate, or any of the above-mentioned preparations, a quarter of a grain to a grain. A larger dose will be required in proportion to the length of time it is employed. Solutions of these are kept of the same proportionate strength as laudanum, and may be given in the same doses.

MOSS.

(See CORSICAN MOSS and ICELAND MOSS.)

MUSK.

An inspissated secretion from the musk deer. Its high price almost precludes it from general use. It is a stimulating antispasmodic of great power, and is given with excellent effect in hysteria. It raises the pulse and excites the nervous system without heating. Combined with ammonia, it has been celebrated for its powers in arresting the progress of gangrene, and of imparting fresh excitement to the nervous system. It has frequently been administered with success in epilepsy, hooping-cough, and other spasmodic affections.

Dose.—2 grains to 20 every three hours.

MUSTARD, SEED.

A beneficial stimulant in dyspepsia, chlorosis, and paralysis, for which purpose a teaspoonful of the bruised seeds may be administered; or, by boiling a tablespoonful of the bruised seeds in a pint of milk and straining them off, a whey may be made, of which a fourth part may be taken three times a day, or they may be given in infusion. The farina, made into a paste with crumbs of bread and vinegar, affords one of the most powerful external stimulants which we can apply, and is technically called a sinapism, or mustard poultice. It produces intense pain, and excites an inflammation, entering much more into the true skin than that which is excited by the Spanish fly; it is therefore worthy of attention in all internal inflammations where bleeding is limited. If necessary, it may be quickened by the addition of oil of turpentine. If a tablespoonful of powdered mustard be added to a pint of tepid water, it operates briskly as an emetic.

MYRRH, GUM-RESIN FROM THE BARK.

Stimulant, expectorant, emmenagogue.

The best form of exhibition is the substance itself, in combination with aloes, rhubarb, galbanum, assafœtida, and preparations of iron.

Dose.—10 grains to a drachm.

Officinal Preparation.—Tincture of Myrrh.

NITRE (*Nitrate of Potash, Saltpetre, Sal Prunelle*)

Is a diuretic and refrigerant. In small doses, dissolved in a large quantity of water, by itself, or combined with other diuretics, as in imperial drinks, it increases the secretion of urine very considerably. It is also an excellent refrigerant, and diminishes heat in febrile and inflammatory disorders. During its operation the pulse becomes reduced in frequency. It is also beneficially exhibited in active hæmorrhages, particularly in hæmoptysis. Nitre is given in large doses on the continent with success in acute rheumatism, but is not much employed in this country for that disease.

A small piece of sal prunelle placed on the tongue and allowed to dissolve slowly is a popular domestic application in incipient inflammation of the throat, which it appears to check; it is also used with benefit in gargles. When taken in average doses it often causes a sensation of coldness in the stomach, occasionally accompanied with spasm; in this case its further exhibition must be discontinued.

Dose.—As a diuretic, from five grains to half a drachm.

Nitre, in combination with an equal portion of muriate of ammonia (sal ammoniac) and two portions of water, forms a freezing mixture.

OIL OF ALMONDS.

Demulcent; for forming emulsions in coughs and other pulmonary complaints. It may be formed into an emulsion by means of an alkali, mucilage, or the yolk of an egg.

OIL OF BITTER ALMONDS.

It has all the characteristic effects of prussic acid, but is so powerful and dangerous as to preclude its application. It is principally sold to perfumers and confectioners.

OIL, CAJEPUT.

(See CAJEPUT OIL.)

OIL, CASTOR.

(See CASTOR OIL.)

OIL, COD-LIVER.

Nutrient, diaphoretic, and demulcent. It is prepared from the liver of the cod, chiefly in Newfoundland, and in the great fisheries in the North of Europe; it has been also extensively prepared of late years by chemists in this country.

It was formerly in much repute in the treatment of rheumatism, but, from its extreme nauseousness, it grew into disuse. It has, however, latterly been prepared with more care, and is most beneficially employed in the treatment of pulmonary consumption, over which it appears to exert a specific action more particularly. It is also exhibited with benefit in scrofula and chronic rheumatism, and in all disorders where there is a deficiency of fat, and in cases of emaciation generally. Where there are copious nocturnal perspirations they will disappear under the influence of the oil. In scrofulous affections it may be taken together with iodide of potassium.

Opinions are at variance as to what its beneficial principles depend upon, whether on iodine, bromine,—or phosphorus,—all of which it contains.

Dose.—From half an ounce to an ounce, twice or thrice daily. It is better to commence with a moderate dose, as a dessert spoonful. It may be taken floating on milk, any aromatic water, or light bitter infusion: raspberry vinegar and water, or orange wine, appear to disguise the taste better. For children it may be made into emulsion with yolk of egg, or they will often take it unknowingly in warm cocoa well sweetened.

OIL, CROTON.

(See CROTON OIL.)

OIL OF OLIVES.

Emollient and demulcent. May be given internally for the same purposes as oil of sweet almonds. It is, however, principally used for external purposes, in the form of liniments and ointments, as also in enemas.

OIL OF TURPENTILE.

(See TURPENTINE.)

OPIUM.

The concrete juice from the capsules of the poppy, principally growing in Asia and the South of Europe. Opium is one of the most valuable medicines we possess. In large doses it is a strong sedative poison, causing stupor without any previous excitement; the stupor increases, and is succeeded by coma, followed by complete torpor, slowness of breathing, cessation of pulse, and death. In moderate doses it produces at first some degree of excitement and exhilaration, succeeded by tranquillity, and sleep of longer or shorter duration. On awaking, these symptoms are not unfrequently followed by headache, nausea, and indisposition to any active exertion. This is by no means to be considered as a general effect, and the refreshment produced by a night's sleep, previously interrupted by pain, watching, and restlessness, more than compensates for the little subsequent derangement.

The effects of opium are much influenced by the idiosyncrasy of the individual, and also much modified by habit. Its operation is greater in those of a plethoric or sanguine temperament than in those of a spare frame and melancholic disposition; and in those easily affected by wine opium causes great cerebral excitement. If the dose of opium be moderate, and not frequently repeated, its effect upon the system gradually subsides, and the health remains unimpaired; but if it be large, and frequently and daily repeated, it wears out the powers of both mind and body. This is exemplified in those who take opium constantly, and where the dose requires to be gradually increased to keep up the effect,—as by the opium eaters and smokers in Turkey and China; and in many instances in this country opium is taken to a large extent, both in the solid and liquid form, ten grains of opium or three ounces of laudanum being a common daily allowance, and in some instances a very much greater quantity being taken.

Dr. Thomson quotes a case from Dr. Russell, of an opium-eater in Smyrna, who took daily three drachms of the drug, and even then found it necessary to increase the dose; and another case, from M. Dhere (a French writer), of a French officer who took a drachm daily.

Some persons take opium in moderate doses occasionally, only when called upon to make any extra exertion, bodily or mental. Under its influence they are enabled to meet the difficulty with a degree of courage and resolution that they would not otherwise have been capable of exerting. This is followed by a proportionate degree of exhaustion, to prevent which a repetition of the dose is had recourse to, which becomes the forerunner of many others, and ultimately leads to a confirmed habit of taking the drug.

In many individuals unused to take opium, a very moderate dose will cause great disturbance, restlessness, delirium, and even convulsions; in others, where it is not followed by sleep, it often causes a miliary eruption, or extreme itching of the skin. Some, on the other hand, are enabled to take very large dose without its being followed by any disturbance of the system, and obtain all its beneficial influence with impunity. The effects of opium are much modified by disease, and it is extraordinary to what an extent the dose under such circumstances may be increased by degrees, even in children (who are most sensibly affected by it) as well as in adults, and with favourable results. Dr. Thomson says he has given, during the passage of gall-stones and of renal calculi, upwards of eight hundred drops of laudanum in less than twelve hours, without any apparent effect besides that of relieving the excruciating torture under which the patient was suffering. It is not easy to account for this effect of opium on the diseased habit; but the fact is indisputable, and instructs us how far we may proceed in exhibiting it under such circumstances.

Opium is much modified in its operation by its combination with other remedies; as with diaphoretics, astringents, and stimulants: the specific influence of each class of remedies is augmented, while the sedative power of the opium is diminished.

In the treatment of different diseases the application of opium is very marked. In fevers, as soon as the tongue becomes moist, and the ardent fever is subdued, it may be given with every prospect of advantage; when a patient has been exhausted by watchful and sleepless nights, its tranquillizing effect is most beneficial. Its stimulating power is manifest when it is given in the low and sinking stages of typhus in small and frequently repeated doses, instead of wine. In a large dose it will often arrest the paroxysm of an intermittent when given previous to its accession, and, if followed up in smaller doses, will prevent the bark running off by the bowels. When combined with calomel it is a most potent remedy in inflammatory affections of the abdomen and chest,—as in peritonitis, bronchitis, &c. In affections of the brain it is most advantageously combined with tartrate of antimony. It probably acts in these cases by diminishing irritability, whereby the strength is husbanded. It is very useful in spasmodic and convulsive diseases, in spasmodic coughs and passive hæmorrhages influenced by irritability, in which the pulse, instead of being full and strong, is small and frequent.

In the exhibition of opium we are to be guided by the nature of the disease and the views with which it is administered. When a stimulant effect is required, it should be given in small doses frequently repeated,—as a quarter of a grain of the solid opium, or five minims of the tincture, every three or four hours. Where an anodyne effect is desirable, one grain of the solid, or fifteen minims of the tincture, is a medium dose. To procure sleep it should not be combined with stimulants, which diminish its sedative properties. Where it is wished to allay pain it should be given in a much larger dose,—as two or three grains, or fifty minims.

Opium produces similar sedative effects if administered through the skin, and more particularly when applied to a denuded surface, in which case a large proportionate dose will be required: from three to five grains of the powdered opium may be sprinkled on a raw surface in neuralgic or rheumatic pains. It may also be used, by means of friction, in combination with compound camphor or soap liniment. In colic, a piece of flannel moistened with laudanum and applied over the abdomen, above which a stomach-warmer, filled with hot water, or flannels wrung out of hot water, may be placed, will form a most tranquillizing application. In tormina, or protracted diarrhœa, a plaster made of from one scruple to a drachm of powdered opium, and the same quantity of powdered camphor mixed with a sufficient quantity of resin plaster, spread on thin leather, and applied warm over the whole abdomen, will act like a charm.

Paregoric Elixir (*Compound Tincture of Camphor*)

Is employed beneficially in colds and coughs unaccompanied with inflammation, in chronic asthma, and hooping-cough. Half an ounce contains one grain of opium.

Dose.—Half a drachm to two drachms. For children, five to twenty minims in linseed-tea, barley-water, or almond emulsion.

Pareira-brava, the Root,

Is a tonic diuretic very useful in diseases of the urinary organs, dropsy, and gravelly complaints. It has considerable influence over the ropy mucous discharge in chronic inflammation of the bladder. The best form of administering it is in the decoction, made by simmering four ounces of pareira in three pints of water down to two pints, and straining when cold. Take half a pint, in divided doses, during the day. It may be advantageously combined with tincture of henbane and dilute nitro-muriatic acid.

POPPY HEADS, THE RIPE DRIED CAPSULES OR SEED-VESSELS.

Narcotic and anodyne. Poppy-heads owe their virtues to a small quantity of opium which they contain. They are chiefly used externally as a fomentation to inflamed and painful parts, in the form of decoction, made by boiling gently four ounces of the dried heads bruised in four pints of water to two pints: the addition of a tablespoonful of vinegar to each pint increases its soothing powers.

The Extract of Poppy is similar in its effects to opium, but milder, and may be classed with extract of henbane, hemlock, and lettuce. *Dose.*—One, ten, or twenty grains.

The Syrup of Poppy is a very uncertain remedy. *Dose.*—Half a drachm to two or four drachms.

PRUSSIC ACID.

(See ACID, HYDROCYANIC.)

POTASH, CAUSTIC, (*Potassa Fusa*),

Is a powerful escharotic. It is prepared in solid sticks, of a grey colour and deliquescent in the air. It is used for forming issues, removing warts, strictures, &c.

POTASH, CARBONATE OF.

In cases where an alkali is indicated, this preparation offers an agreeable and efficient remedy. In disordered states of the digestive functions alkalies frequently act with surprising effect. In calculous affections their value has been noticed, and the stomach seems to bear the lengthened exhibition of the carbonate of soda or potash with more temper than it does that of any other alkaline combination; and on account of the increased quantity of carbonic acid which this salt contains, it is to be preferred for effervescing draughts.

Dose.—Grs. x. to ʒss.

POTASH, SOLUTION OF (*Liquor Potassæ Carbonatis*)

Is administered beneficially in dyspepsia where there are sour eructations, heartburn, or pain in the stomach. It neutralises the acid, and counteracts the disposition of the stomach to acid secretion. It is most usefully given in chronic diseases of the skin dependent on the acidity present in the digestive organs and in the stomach of the gouty and rheumatic; also in scrofulous affections it is employed with much benefit (see Brandish's Alkaline Solution).

Dose.—10 minims, gradually increased to 40 or 60, largely diluted in milk, beer, or aromatic bitter infusions. The dose is better mixed as it is required to be given.

POTASH, NITRATE OF.

(See NITRE.)

QUASSIA, THE WOOD.

Stomachic, tonic, &c. This wood owes all its properties to a peculiar bitter principle. It is said to derive its name from a West Indian negro, called Quassi, who first used it in fevers. It is highly useful in debilities of the stomach and intestinal canal, and in irregular and atonic gout, in combination with alkalies; and in the hysterical atony of females, the quassia affords more vigour and relief to the system than the Peruvian bark, especially when combined with preparations of iron. To this, as well as the other stomachic infusions, it is usual, at the time of prescribing them, to add a small quantity of some aromatic tincture or spirit.

The ordinary form of exhibition is the infusion. The proportion of quassia directed for half a pint of water is a scruple by the London, and half a drachm by the Edinburgh College.

Dose.—One ounce to an ounce and a half twice a day. If made too strong, or given in large doses, it is apt to excite vomiting.

QUININE (*Disulphate of Quina*)

Is procured from the yellow bark, and contains all its active principles in a concentrated state. One grain of the disulphate is equal to a drachm of bark in substance; and the dose being small, it is less likely to produce nausea or derangement of the stomach than bark in substance, and is not so disposed to run off by the bowels. Disulphate of quina is now generally exhibited in all cases where bark in substance was usually given. Its effects on the system in cases of debility are remarkably tonic, and, given in certain states of disease, anti-periodic,—or, in other words, it arrests intermittents. Its most marked beneficial effect is in cases of neuralgia and intermittent affections. Sir B. Brodie gives a most illustrative case of a gentleman many years resident in India, who was affected with spasmodic stricture of the urethra, which came on every alternate night at twelve o'clock, continuing five or six hours. By exhibiting large doses of the disulphate of quina at short intervals previous to the accession of the paroxysm the disease was cured.

It is beneficially exhibited where prostration of strength is unaccompanied by any tendency to inflammation, and where there is no irritability of the stomach and digestive organs; but where that exists, or when there is a disposition to active inflammation, these should be first relieved by appropriate treatment. In some individuals it is apt to cause headache, and in such cases the decoction of bark is a preferable medicine. A grain of capsicum with each dose of quinine will sometimes counteract the tendency to headache.

Dose.—One to five grains in any light bitter infusion, or in water with a little tincture of orange-peel, adding one drop of dilute sulphuric acid for each grain of the disulphate of quina. It may be also given in the form of pill, made up with conserve of roses. In neuralgia and intermittents it may be given in from five to ten-grain doses.

Officinal Preparation.—Compound Tincture of Quina.

Rhatany (*Krameria*).

The root of rhatany contains a peculiar modification of tannin, with merely a trace of gallic acid, fecula, and certain salts of lime.

In all its forms rhatany root is eminently astringent and tonic. It has been used with much success in chronic diarrhœa and dysentery; also in leucorrhœa, and in hæmorrhages from the uterus. It may be exhibited either in decoction or tincture; the latter form of which may be prepared by macerating ℥ij. of root in a pint of proof spirit. Locally it may be applied in the form of powder to indolent ulcers with excessive discharge, and as a styptic to arrest hæmorrhage from small vessels.

Rhatany root has but recently been introduced into the materia medica of the London College. The extract, which was some years ago brought into this country, is supposed to have been used for the purpose of communicating the rough astringent taste to port wine.

RHUBARB, THE ROOT,

Is a mild purgative, stomachic, astringent, and tonic. In small doses it acts as a tonic, increases the digestive powers, and improves the appearance of the intestinal secretions. In full doses, it acts as a mild purgative without increasing the secretions, and pourtrays itself in a very short time in the urine. Its astringent effects follow its purgative operation. The combination of these properties renders rhubarb a medicine of much value. In the commencement of diarrhœa from irritation it is the most beneficial aperient we can employ. Combined with an equal quantity of magnesia, and with some aromatic, it forms the most appropriate purgative for children and persons of feeble habit, the magnesia counteracting its subsequent astringent effect.

Dose and mode of exhibition.—As a stomachic tonic, from five to ten grains, added to an equal quantity of carbonate of soda and half the quantity of ginger; as a purgative, from one to two scruples, combined with magnesia and ginger.

Officinal Preparations.—Tincture of Rhubarb (Compound). A tonic and stomachic laxative. Dose:—two to eight drachms.

Infusion of Rhubarb. A mild aperient in doses of half an ounce to two ounces.

Rhubarb Pill (Compound). A warm mild aperient. Dose:—five to ten grains.

Compound Rhubarb Powder. (See Gregory's Powder in Prescriptions 31 *a*.)

RUE, THE LEAVES,

Is a well known shrubby plant, cultivated in gardens;

it flowers in June, and holds its leaves all the winter. It has a bitter, pungent, and slightly aromatic taste, a strong unpleasant smell, and is of so irritating a nature as to vellicate the skin if much handled. The whole herb and its seed are used. The old writers attributed great virtues to this herb, though now it is little used, in consequence of its unpleasant taste and smell.

Emmenagogue, antispasmodic, stimulant, carminative, and an excellent nervous medicine.

Rue tea is much used in the country as an emmenagogue.

The confection is the only preparation in common use,—for clysters, in spasmodic colic, from half a drachm to an ounce mixed in thin gruel.

SALTPETRE.

(See NITRE.)

SARSAPARILLA.

The root of a small vine-like plant, which resembles a bramble, brought from the West Indies, New Spain, Honduras, and other parts. The root consists of a number of strings, which are as thick as a goose-quill, flexible, and free from knots, and composed of fibres which run their whole length, so that they may be split from one end to the other.

It was imported by the Spaniards into Europe in 1549, as a specific remedy for the venereal disease; but it soon fell into disrepute, and so continued till about the middle of the last century, when it was again brought into notice by Hunter and Fordyce, as a medicine calculated to assist the operation of mercury, as well as to cure those symptoms which may be called the *sequelæ* of a mercurial course. It determines to the skin, and hence is useful in many cutaneous diseases attended with torpor of the skin, as dry scabby eruptions. It is one of the best diaphoretic alteratives we possess when properly prepared and administered; and there is no medicine equal to it for restoring and recruiting the general health after long and protracted disease. Many of the modes of preparing it destroy its properties; it also requires to be taken regularly for a length of time (from four to six or eight weeks), and in large quantity, to render it beneficial. The simple decoction is by far the best form and mode of taking it. The red Jamaica variety is said to be the best sort.

Dose and mode of administration.—Decoction, from half a pint to a pint daily.

Officinal Preparations.—Decoction (Compound). Dose:—from half a pint to a pint daily in divided doses.

Fluid Extract. Dose:—half an ounce to an ounce three times a day.

Syrup. Dose:—One to three ounces.

SCAMMONY, GUM RESIN.

The concrete juice of the roots of a convolvulus growing in Syria. The best is brought from Aleppo. Its odour, when burned, is disagreeable, and its taste is slightly bitter and acrid.

It is an efficacious and powerful cathartic, very eligible in worm cases, and in the disordered state of the bowels which so commonly occurs in children.

Dose.—Grs. iii. to xv. in form of powder, triturated with sulphate of potash or sugar: when given alone it is apt to irritate the fauces. The compound powder is a useful form. Scammony forms a good emulsion with milk, in the proportion of five grains to two ounces of fresh milk: where a more active cathartic is required, it may be combined with calomel.

Officinal Preparations.—Confection of Scammony. Dose:—Grs. x. to ʒj.

Compound Powder of Scammony. Dose:—Grs. x. to ℈j.

SENNA, THE LEAVES,

Is an active cathartic, safe and effectual in its operation, though often causing griping and flatulence. Its action is stimulating, increasing the intestinal secretions. It is appropriate for all cases requiring active purgation, and is better combined with some saline aperient, as sulphate of magnesia, and some aromatic: the compound infusion is the best form: the addition of a small portion of the extract of liquorice completely disguises its nauseous taste. For children, two drachms of the leaves may be infused with some black tea, and thus given with sugar and milk.

Dose and mode of administration.—Powder, one to two scruples combined with cream of tartar and ginger. Confection of Senna (Lenitive Electuary), very useful: dose, one to three drachms. Infusion of Senna (Compound). Dose:—One to three ounces. Tincture; a cordial cathartic. Dose:—From one to two ounces. Syrup. Dose:—One drachm to one ounce.

"As infusion of senna spoils by keeping, the addition of one grain of nitre to each ounce will impart a great conservative power."—*Squire.*

SENEGA; (*Polygala Senega*), THE ROOT,

Is a stimulant expectorant, diaphoretic and diuretic. It is beneficially administered in the advanced stages of chronic bronchitis and humoral asthma, croup, protracted hooping-cough, and dropsy. The best mode of exhibiting it is in the form of infusion, in combination with ammonia or oxymel of squills.

Officinal Preparations.—Decoction of Senega. Dose:—Two to three ounces.

Infusion. Dose:—The same.

SERPENTARIA (*Virginian Snake-Root*).

Stimulant and diaphoretic. Is not in so much repute as formerly; is useful in typhoid fevers and intermittents, combined with bark; in gangrenous affections: topically as a gargle.

Dose and mode of administration.—It is better given in the form of infusion. Dose:—From one to two ounces.

Tincture of Serpentaria. Dose one to three drachms.

SILVER, NITRATE OF (*Lunar Caustic*).

Escharotic, antispasmodic, tonic. It is most valuable as a topical application, either in the solid form or in a state of solution. It is applied in the solid form to foul and fungous ulcers, to warts, corns, and small tumours; also to check hæmorrhage from bleeding surfaces or from leech-bites. A solution of two scruples in an ounce of distilled water, applied with a camel's hair pencil freely over the surface in erysipelas, is a very efficient remedy; and it may be applied in the same manner to ulcerations of the tonsils, or by means of a small probang in granulated disease of the throat or windpipe.

Internally, it is one of the best tonics that can be employed in the early stages of consumption, and in chronic diseases of the stomach. It is one of the most beneficial remedies in chorea and epilepsy; but its exhibition must be persevered in for a considerable time, and in gradually increased doses. There is, however, a great objection to its long-continued internal use, in the dark colour which it communicates to the skin: this is said to be counteracted by the addition of dilute nitric acid.

Dose.—One-eighth of a grain to four grains three times a day, made into a pill with crumb of bread or any of the vegetable extracts. It is advisable to suspend its exhibition every second or third month for a short time, to prevent the discoloration of the skin.

The IODIDE OF SILVER has been recommended to be taken in convulsive disorders by Dr. Patterson, as equally efficacious with the nitrate, without discolouring the skin.

SILVER, OXIDE OF.

Tonic and astringent. It has been much lauded of late in cases of menorrhagia, and diseases of the stomach arising or resulting from debility.

Dose.—Half a grain to two or three grains, formed into a pill with extract of dandelion, three times a day.

SOAP.

(Castile or Hard Soap, made with Olive Oil and Soda.)

Purgative and diuretic. It is rarely used internally by itself, but is highly beneficial in combination with other medicines in the form of pills, both of itself, and through forwarding their solution in the stomach. Rubbed on the abdomen of children in the form of strong lather every morning, it is reputed to be highly useful in mesenteric disease and constipated bowels.

Dose.—Five grains to half a drachm.

Officinal Preparations. — Soap Pill, with opium; Soap Plaster; Soap Cerate; Soap Liniment.

SODA, BICARBONATE OF,

Is applicable to the same cases as the preparations of potash; but it is more pleasant to the taste, and in many cases seems to agree better with the stomach. In dyspepsia accompanied with secretion of acid and vomiting, it is more commonly employed than any other remedy, under the name of carbonate of soda; but where there is much acid in the urine the potash is to be preferred. It has been given with success for the cure of bronchocele. Twenty grains taken in water on going to bed will often procure sleep, where there is an excess of acid in the stomach, when sedatives have failed. Half a drachm of tartaric acid, and the same quantity of bicarbonate of soda, dissolved in half a pint of water, forms a pleasant saline draught, and is mildly aperient.

SODA, CARBONATE OF,

Is not employed as an antacid so frequently as the bicarbonate, in consequence of its disagreeable taste; it is very useful in the dried state, in which it may be exhibited in the form of powder. In diseases of the skin it is employed in the form of ointment, or as a lotion, or, which is preferable, dissolved in the water of a tepid bath

SODA, DRIED CARBONATE OF.

54 grains of this is equal to 144 grains of the crystalized salt. This salt may be given in the form of powder, or mixed with other substances, in pills.

SODA, SULPHATE OF.

(See GLAUBER'S SALTS.)

SOLUTION OF ACETATE OF AMMONIA (*Mindererus's Spirit*).

Diaphoretic, externally cooling and astringent. It is one of the best saline diaphoretics, and is very generally employed in febrile affections and colds, as it operates without increasing the heat of the body. It should be largely diluted with water, the surface of the body being kept warm, and diluent drinks taken freely to promote its operation on the skin, or it is apt to pass off by the kidneys. It forms an excellent evaporating lotion to inflamed surfaces, and for sprains and bruises; also, largely diluted with rose-water, it forms a good collyrium.

Dose.—One drachm to an ounce repeated every five or six hours.

SPERMACETI.

Emollient and demulcent. It is used in coughs and dysentery, and in the composition of ointments.

Dose.—Half a drachm to a drachm, formed into an emulsion with sugar, yolk of egg, and water.

SPIDER'S WEB (*Cobweb*).

The cobweb of cellars, barns, and stables, has been reputed from time immemorial for arresting superficial hæmorrhages. Dr. Graham says it is a valuable remedy for ague; and it also allays diseased irritability, both of body and mind, in a surprising manner. Under its influence, the pulse, when quick, frequent, irregular, and excited, becomes slow, calm, and regular. It will often thus tranquillize much better than opium and henbane; and its soothing properties point it out as a valuable palliative in the advanced stage of consumption, in asthma, in chronic hysterics, and in other spasmodic complaints. Dr. Jackson details a remarkable case of asthma in which the composing effects of cobweb were conspicuously evinced. The complaint was hereditary, and connected with malformation of the chest. The patient was unable to lie down in bed from a sense of suffocation, and was obliged to take the little sleep he could get in a half sitting posture, being supported by pillows. In this distressing condition he one night took twenty grains of the spider's web, and obtained from it a sound and uninterrupted sleep all night,—" a blessing to which he had been an entire stranger for above six weeks."

Dose.—Five to ten or twenty grains at bed-time, made into a pill. For ague it must be given thrice a day.

SPIRIT OF NITRIC ETHER (*Sweet Spirits of Nitre*)

Is a mild stimulant and diuretic, and, in combination with salines, assists in their diaphoretic properties. It is generally employed as a diuretic united with squill and digitalis, when it renders their diuretic properties more certain. It is also useful in febrile diseases, spasmodic asthma, and dropsies, as an assistant to more active remedies.

Dose.—Twenty minims to a drachm in any convenient vehicle.

SQUILL, THE BULB.

Diuretic and expectorant in small doses, emetic and purgative in large doses. This is a medicine of great utility, when judiciously given, in pulmonary complaints, hooping-cough, asthma, and dropsy. From the property it possesses of promoting the secretion of mucus, it facilitates expectoration when the sputa are viscid: for this purpose it is usefully prescribed with ipecacuanha and tartarized antimony. In cases of asthma it is beneficially combined with the galbanum pill, and in dropsy with the blue pill or calomel.

The oxymel of squills is an excellent expectorant in the pulmonary complaints of children, in doses of from ten minims to half a drachm. The tincture and pill are the most beneficial in the chronic catarrh and asthma of adults. As a diuretic in dropsy, it is better given in substance, in doses of from three to five grains of the fresh bulb, or from one to three grains of the fresh powder, formed into a pill, and with which may be combined a grain of calomel and a quarter of a grain of opium.

Officinal Preparations.—Powder of Squill, in one-grain doses, as an expectorant. Oxymel, in doses of half a drachm to two drachms. Tincture, in doses of from ten to thirty minims. Compound Squill Pill, in doses of from five to fifteen grains.

STRAMONIUM (*The leaves and seeds of Thornapple*).

In large doses a narcotic poison; in medicinal doses an excellent sedative. In effect it somewhat resembles belladonna and henbane. It may be beneficially given in small doses. frequently repeated till it gives relief, in all forms of spasmodic and painful diseases, as tic douloureux, &c.; more particularly in affections of the womb. In asthma the fumes of the burnt herb may be smoked in the same manner as tobacco,—either the cut herb in a pipe, or the leaves rolled in the form of a cigar. It should be smoked with care, and in moderate quantities at a time, and it is not advisable that it should be smoked by elderly people, or by those who are disposed to apoplexy.

Dose.—Of the powder or extract, from a quarter of a grain to a grain repeated at moderate intervals.

Officinal Preparation.—Extract of the Seeds of Stramonium.

STRYCHNIA (*The active principle of Nux Vomica*).

A special stimulant and tonic. It acts chiefly on the spinal marrow and the nerves that proceed from it, without influencing the brain. It appears more particularly to affect the nerves of motion. In large doses, or in small ones long continued, it causes a spasmodic and powerful contraction of the muscles of the trunk, and may even produce death, by rendering breathing impossible. It is a very active poison: one grain of pure strychnia in a dose has proved fatal. The principal use of strychnia is in chronic paralytic cases; but, in order that it may act effectually, it is essential that the nerves and muscles of the part should be whole and sound, and that there should be no remains of inflammatory action. It is sometimes usefully applied to the paralysed part on the raw surface caused by a blister,—as in the palsy of the wrist of painters. It may be advantageously exhibited in affections of the nervous system,—as in chorea, epilepsy, and nervous twitchings; as a tonic in some disorders of the stomach, and in costive habits depending on a want of tone in the large intestines (which is frequently the case in females); and also in painter's colic, and in incontinence of urine depending on paralysis of the bladder. In minute doses it appears to promote digestion.

Dose.—One-sixteenth of a grain, gradually and cautiously increased to half a grain, made into a pill with confection of roses or crumb of bread. When applied through the skin, half a grain may be sprinkled over the denuded surface.

In whatever way strychnia is used the greatest attention is requisite at all times, as it is a most active poison, and also as its virulent effects are much more quickly manifested on some individuals than others. Should violent twitching of the limbs occur during the time of its administration it should be immediately withheld.

Sugar of Lead (*Acetate of Lead*).

A sedative and astringent. It is beneficial in all forms of hæmorrhage. When the hæmorrhage is of an active character it should be given in conjunction with antiphlogistic remedies. It may be likewise used in cholera, in chronic diarrhœa, and in dysentery. Externally, a solution of sugar of lead in water is a most advantageous application to inflamed surfaces in contusions and abrasions and various eruptions of the skin, and for checking inordinate discharges; also, in a weaker solution, as a collyrium in ophthalmia.

Dose.—From two to four grains, in the form of pill, combined with an equal portion of extract of poppy, or with a quarter of a grain of opium and confection of roses. When taken, it should be washed down with water acidulated with vinegar.

Sulphur (*Precipitated Sulphur*).

Laxative and diaphoretic. It acts as a mild aperient, and is beneficially employed in chronic rheumatism, atonic gout, piles, and many cutaneous diseases. From being converted into sulphuretted hydrogen in the bowels, the evacuations and insensible perspiration of the individual during, and for some time after its operation, are very much tainted. Externally it is a specific for itch, acting, it is said, as a poison to a small insect which exists in the itch pustules; and it is highly useful in many cutaneous diseases when exhibited either internally or externally.

Dose.—From a scruple to a drachm. For piles it is better given in the form of electuary, combined with jalap and cream of tartar.

Officinal Preparation.—Sulphur Ointment.

Tar.

Stimulant. It is principally used externally in cutaneous diseases, more particularly in those of the scalp. Internally tar water was a popular remedy at one time in diseases of the chest. It has latterly fallen into disuse.

Officinal Preparation.—Tar Ointment

TIN POWDER.

Anthelmintic. It is a valuable vermifuge in cases of round worm, but is not so effectual in ascarides or in tape-worm. Its action appears to be mechanical, and it should therefore be always followed by an active purgative.

Dose.—From one to four drachms every morning, made into an electuary with honey or treacle.

TORMENTIL ROOT.

Astringent. It is a powerful astringent, but mild in its operation, and therefore beneficial in the diarrhœa of phthisis, and in all cases of diarrhœa which are accompanied by much excitement. Its active principle is the tannic acid which it contains.

Dose.—Of the powder, ten grains to a drachm.

Officinal Preparation.—The Decoction, which is the most eligible mode of employing it.

TURPENTINE, THE VOLATILE OIL OF.

The rectified oil of turpentine is stimulant, diuretic, anthelmintic, purgative, and rubefacient. In small repeated doses it acts as a stimulant and diuretic, causing an increased flow of urine, to which it communicates a violet odour. If administered in too large doses, or continued too long, it causes strangury, and sometimes even bloody urine. It is useful in chronic rheumatism, lumbago, sciatica, passive hæmorrhages, and chronic discharges from mucous surfaces,—as in gonorrhœa and leucorrhœa. It is also an effectual remedy for tape-worm: dose, for an adult, half an ounce made into an emulsion with mucilage, or yolk of egg, sugar, and water. From its stimulating and diuretic properties it is not so appropriate for children. As a purgative, it is better combined with castor oil, which renders its action more certain and efficacious; and it may be administered by the mouth, or in enemas. Externally, it is a most useful local application in chronic pains or indolent tumours, and as a counter-irritant in inflammation of the chest or bowels.

Dose.—Ten minims to one drachm in repeated doses as a diuretic or stimulant, or in half-ounce to two-ounce doses in tape-worm.

Officinal Preparations.—Liniment of Turpentine, Confection of Turpentine, Enema of Turpentine.

Valerian Root

Is a stimulating antispasmodic. It is extremely beneficial in those disorders which are connected with a morbid susceptibility of the nervous system, particularly in those cases of hysteria which so often bear a close resemblance to epilepsy; also in hemicrania, and in some species of epilepsy. Its effect in such diseases is often increased by combining it with bark. Given in large doses, it produces headache, loss of vision, and vertigo. Magnesia combined with valerian completely removes its odour. It is best given in substance,—as from a scruple to a drachm of the powder three or four times a day. The volatile tincture is an elegant and efficacious cordial and antispasmodic in doses of from one to three teaspoonfuls in water.

Officinal Preparations.—Infusion of Valerian, Tincture of Valerian, Compound Tincture of Valerian.

Valerianate of Zinc

Is a tonic antispasmodic of great power, and is especially useful in neuralgic affections, which commonly depend on loss of tone in the system,—as in those of the face, vertigo, and chorea.

Dose.—Three-quarters of a grain to one or two grains, twice or thrice a day, in a pill, combined with extract of dandelion or confection of roses. With the same views may be exhibited the

Valerianate of Iron,

Valerianate of Quinine, and

Valerianate of Soda.

All medicines of this class require medical superintendence.

VERATRIA.

(An alkali prepared from Colchicum and other plants.)

A powerful local excitant. Used externally, in the form of ointment (in the proportion of half a drachm to one ounce of lard), in neuralgic affections, and in gouty and rheumatic paralysis.

VINEGAR

Is a vegetable acid, the product of fermentation. In France it is prepared from the lighter wines; in this country various kinds of malt liquor, cider, or sugar dissolved in water, are substituted for wine. Vinegar is a good cooling astringent. Taken largely diluted with water as a common drink it will diminish excessive discharges,—as the colliquative sweats and diarrhœa of hectic fever. It may be added to acidulate any diluent drink. In fevers it is cooling to the stomach, and promotes gentle perspiration. As a local astringent it is used to check bleeding from the nose, from piles, and from ulcers, and in hæmorrhage from the bowels, particularly when from the lower part. Clysters containing vinegar may be used with much benefit. It forms an excellent gargle with honey and sage tea; and, in chronic inflammation of the eyes, diluted with water, is an excellent lotion. It is also one of the best antidotes in cases of poisoning from the alkalies.

WORMSEED (*Artemisia Santonica*)

Is used in cases of ascarides and round worm. From twenty to thirty grains, mixed with treacle, may be given to children night and morning, with an occasional brisk purgative. A more effectual mode for getting rid of ascarides or thread worm is by administering a strong infusion of it, as an enema, twice or thrice a week.

WORMWOOD, THE PLANT,

Is an excellent bitter tonic, but somewhat nauseous, and is beneficially exhibited for strengthening the digestive organs in feeble habits: hence its utility for the relief of worms.

Dose.—In powder, one to two scruples; in infusion (in the proportion of six drachms to a pint of water), half to three-quarters of an ounce twice a day, which is the best mode of giving it.

ZINC, OXIDE OF (*Flowers of Zinc*).

Principally used externally, in the form of very fine powder, to excoriations; or, in the form of ointment, as an exsiccative in superficial ulcerations.

Officinal Preparation.—Ointment of Zinc.

ZINC, SULPHATE OF (*White Vitriol*).

Emetic, tonic, antispasmodic, astringent. It is a most useful preparation. Given in doses of from fifteen grains to half a drachm in two or three ounces of water, it acts as an efficacious and speedy emetic, without producing much nausea; it is therefore applicable in cases of debility, or where poison has been taken, and immediate vomiting is required. In small doses it is a most useful tonic and antispasmodic. Externally, in solution, it forms an astringent lotion and injection to check profuse discharges after the inflammatory stage has subsided, and in chronic ophthalmia.

Dose.—As an emetic, fifteen grains to half a drachm; as a tonic, one-eighth of a grain to one grain twice or thrice a day. For a lotion, one grain to ten grains dissolved in one ounce of water.

Officinal Preparation.—Compound Solution of Alum.

MINERAL WATERS.

In a previous part of this work some general remarks were made upon the use of mineral waters and bathing: we now come to speak of them specially. Before, however, treating of each particular spring separately, as has been done with each article of the Materia Medica, it is advisable to divide them into classes, though it is not possible to do this according to their therapeutical effects, as in the case of medicines, but they are arranged according to their main chemical qualities. And it is as well here again to recal the fact that the remedial effects of mineral waters are by no means in proportion to the *quantities* of active ingredients which they contain, and that the chemical classification is adopted only because the waters comprised in each class act of course to a certain extent in a similar manner: though in most instances any particular water might be included at least in two classes, and frequently in more.

The usual classification is into—1, Saline; 2, Sulphureous; 3, Chalybeate; 4, Acidulous; and 5, Slightly Mineralised Hot Springs.

1.—*Saline Springs.*

These contain variable quantities of common salt, Glauber's salt, Epsom salt, the carbonates of soda, lime, and magnesia:—other salts and earths in smaller quantities, and sometimes iodine, bromine, iron, sulphuretted hydrogen gas and carbonic acid gas being also present. This class may be again subdivided into *(a)*, *aperient*, when Glauber's, Epsom, and the aperient salts are the predominant ingredients; *(b)*, *simple saline*, when common salt is the chief ingredient; *(c)*, *alkaline*, when carbonate of soda is in greater quantity than in other salts.

Aperient saline springs act as aperients or diuretics, according to the quantity taken, and are beneficial in cases of indigestion arising from habitual constipation. When cold they are antiphlogistic, and beneficial in cases of fulness of the vessels and febrile affections; when hot they excite the system. The principal waters of this sub-class are, Cheltenham, Leamington, and Epsom, in England; Airthrey, in Scotland; and Pülna and Seidschutz in Germany.

Saline mineral springs, when there is not much salt present, and no iodine or bromine, have merely an alterative effect; when taken internally, they act slightly upon the kidneys; and when used in the form of baths they excite the nerves and vessels of the surface; and thus, partly for their saline qualities, and still more from the water absorbed, they tend to diminish glandular swellings, and to remedy disorders of the skin. When they are strongly impregnated with salt, and when they contain iodine or bromine, they have a powerful effect in exciting the absorbent vessels, and are therefore useful in reducing glandular enlargements, scrofulous affections of the bones, and chronic syphilis. Kissingen and Kreutznach, in Germany, and the Saratoga spring in America, are of this sub-class. Sea-water also may be placed here.

Alkaline springs are useful in indigestion accompanied by or arising from acidity of the stomach or a torpid action of the liver in gouty complaints, and in cases where there is a disposition to gravel and stone. They should be carefully shunned where there is disease of the lungs, or a tendency to apoplexy or great debility. Vichy is a hot spring of this sub-class, and Selters a cold one; the latter is also highly carbonated.

2.—*Sulphureous.*

These waters contain sulphuretted hydrogen gas as their main characteristic; they generally also contain various mineral salts, and frequently carbonic acid gas. They are met with both hot and cold. They must be used at the spring itself, as the gas is soon dissipated. Sulphur has a strong action upon the skin, and, indeed, upon any surface with which it comes in contact; and in the form of gas in combination with hydrogen its power is very much increased. These waters, therefore, are found very efficacious in many obstinate and serious disorders. Their effect, particularly when hot, is very stimulating; and they should therefore, (as indeed is the case with most mineral waters), be avoided when there is any tendency to inflammation, congestion in the head or lungs, or to hæmorrhagic affections. Their primary action is to stimulate the surface to which they are applied, viz.: the skin and the surface of the stomach, bowels, and urinary passages; increasing the force of the capillary circulation, and of the absorbent system. They thus prove useful in cases of inactive liver, in piles, chronic catarrh, and chronic discharges from the urethra, in atonic rheumatic affections, and some cutaneous diseases. Harrogate in England, and Moffat in Scotland, are in this class.

3.—*Chalybeate.*

These waters contain carbonate and sulphate of iron, though their effect is by no means to be measured by the *quantity* of these salts which they contain (and the same is true of all mineral waters in reference to the salts which give them their character), but rather to the state of combination and preparation in which they exist. They have a directly strengthening and tonic action on the surfaces to which they are applied, and through them on the whole system. They are therefore useful in all cases when debility or want of tone is the direct cause of impaired health; such as anæmia, debility depending upon diminished quantity of the blood (arising from passive hæmorrhage, chronic discharges, and other causes), or deterioration of its quality, dyspepsia caused by a relaxed state of the stomach, and functional disorders of the uterus. Persons of full habit, and with a disposition to congestion, should avoid chalybeates, and their unsuitableness will generally be manifest by their causing constipation of the bowels or fulness of the head or chest. They should also be avoided during pregnancy. Cheltenham and Tunbridge in England, Hartfell in Scotland, Spa and Pyrmont in Belgium, and some of the waters at Harrogate, belong to this class.

4.—*Acidulous.*

These springs are rich in pure carbonic acid gas, and contain a greater or less quantity of salts, so that many which have been classed as simple salines and alkalines might be placed in this class. In as far as they are saline, they have the same qualities as the springs arranged in those classes, but the gas renders them more stimulating and exhilarating, thus exciting the nerves of the alimentary canal and urinary passage; and as they are at the same time cooling, they are of use in cases where there is great debility, sometimes even when febrile symptoms are present, and where there is sub-acute inflammation; though caution is necessary in their application in these latter cases, as they are frequently too stimulating, and cause headache and other symptoms indicative of their unfitness. They are sharp and fresh in taste, but soon lose their gaseous contents by exposure. Ilkeston spring in England, and several in Germany, as Geilnau, Pyrmont, and Seltzer, belong to this class.

5.—*Slightly mineralized hot springs.*

There are many springs of this class, and of various temperatures. When taken internally, they have, in a milder degree, the same action as such of the other classes as have the same salts; but when used as baths, much more powerful effects are found than would be anticipated from the slightness of their mineralization. Bristol, Matlock, Buxton, Bath, in England, and Wiesbaden and others in Germany, may be placed in this class.

A description of several of these spas follows in alphabetical order, though such as are in the list have not been chosen on account of, nor described at length in proportion to, their strength or activity, or even general celebrity; but it has been preferred to mention more particularly those which, from whatever causes, are best known to, and most likely to be resorted to by, Englishmen. For a full description of all the chief spas in the United Kingdom and the continent, the reader is recommended to consult the works of Mr. Edwin Lee; and for an account of the English spas, Dr. James Johnson's little book.

AIX (*Aix-la-Chapelle*).

This mineral water is hot, alkaline, and sulphurous. It is impregnated with sulphuretted hydrogen gas to a very great extent, but no residuum of sulphur is found after evaporation; it contains also, in the imperial pint, 15 grains of carbonate of soda, 6 grains of neutral purging salts, and 5 grains of earthy carbonates. Its temperature varies at the different baths, being 146° at the hottest, and 112° at the spring where it is usually drunk. Appearance pellucid; smell sulphureous; taste saline, bitter, alkaline; feel soft and soapy.

Internally it is useful in disorders of the stomach and biliary organs resulting from a life of indulgence; in disorders of the kidney accompanied with pain in the loins; where there is mucous urine, with difficulty in making water; in cutaneous eruptions, and all foulness of the skin: in which latter case its internal use should be accompanied by the bath. From its heating qualities it is to be avoided in cases of an inflammatory tendency, in hectic fever and ulceration of the lungs, and where there is a disposition to active hæmorrhage.

Externally, as a hot bath, it may be used at any temperature that can be borne, and even as a vapour bath, without the assistance of artificial heat. It is highly efficacious in almost all cutaneous disorders, in the stiffness and rigidity of the joints and ligaments following gout and rheumatism; in palsy, where as much heat as the body can bear is desirable; and in the debility resulting from a long course of mercury and excessive salivation.

The usual seasons for using these waters are the early summer and early autumn.

BAREGES.

These waters have most of the properties of those at Aix, but in a less degree. The temperature varies at the different baths from 73° to 120°. They are used for the same purposes as as the Aix waters, but are said to be peculiarly efficacious in the reduction of tumours of various kinds, in indigestion accompanied with heartburn, in jaundice, and in obstinate colics.

BATH.

Formerly a very fashionable watering-place, but lately fallen somewhat into disrepute, owing to the small quantity of saline ingredients found in the waters, which contain in the pint about 15 grains of solid matters, of which 9 grains are sulphate of lime, and 1-50th of a grain of oxide of iron; there is also about one cubic inch of carbonic acid gas. The temperature varies in the different baths from 116° to 94°; but in the hottest and largest bath the higher temperature is only found in the centre, where the water is admitted, and towards the circumference it is little more than 98°. The bathing arrangements are on a magnificent scale, there being three public and several private baths, with appliances of all kinds, and, among others, for administering the subaqueous douche—*i. e.* for directing a stream on any part of the body while immersed in the water. When drunk, these waters should be swallowed quickly, otherwise they lose their carbonic acid and chalybeate. Externally, they may be used in any way,—for bathing, pumping, shampooing, &c.

Internally they are used in cases of that debility of the digestive organs and the whole system which succeeds inflammatory attacks of gout, in hypochondriasis, biliary derangements, chlorosis, and hysteria, when there are no inflammatory symptoms.

Externally, in atonic gout, nodosity of the joints, chronic rheumatism, paralysis, particularly painter's colic, indigestion, and various skin diseases, especially lepra and psoriasis. It should be borne in mind that they are absolutely injurious in all diseases of an inflammatory nature, even where there is only local subacute inflammation.

The season is the winter, Bath being hot and oppressive in the summer; and three weeks or a month at least are considered the necessary duration of a course.

BEULAH.

In a beautiful country, near Norwood, and about eight miles from London, is Beulah Spa, a carbonated aperient saline of considerable power. In the pint it contains 62 grains of Epsom salt, 18 grains of common salt, 20 grains of other saline matter, and 8 cubic inches of carbonic acid gas. It is thus considerably stronger in aperient qualities than the Cheltenham waters. In all kinds of indigestion where aperients are desirable the Beulah Spa will be efficient, and will at the same time afford a fine climate, pure air, and beautiful scenery. The reader is referred to what is said under Cheltenham and Leamington.

BUXTON,

A village in Derbyshire, twenty miles from Matlock, situated at a considerable elevation, in the midst of beautiful scenery, which possesses some tepid springs very slightly mineralized. It is as much resorted to, however, for its air and scenery as for its waters. Their temperature is 82°, and they contain in the pint 2 grains of saline matters, 1-3d of an inch of carbonic acid gas, and 3-4ths of an inch of nitrogen. This small quantity of salines would seem incapable of producing any effect on the human body, but we cannot estimate the action of mineral waters solely by their chemical constituents; and no doubt, in the present case, to their gaseous contents are to be attributed the physiological effects which they undoubtedly sometimes exhibit in persons of full habit and a tendency to inflammatory disorders. They have a decidedly diuretic action. It is chiefly for baths that they are used, of which there is a good supply, there being several private, and one large public bath. There is a large quantity of rain, but the air is quite dry.

CHELTENHAM.

There are some springs in this place varying in their chemical qualities; but they may be divided under the two heads of Saline and Chalybeate. The former are chiefly aperient, and the latter are the strongest chalybeates in England, and are at the same time aperient, which circumstance gives them great value; there are, besides, some which would come under the heads Sulphureous and Acidulous, and some containing iodine. The strongest simple saline spring contains in the pint 58 grains of common salt; the strongest aperient contains 75 grains of purging salts; the most strongly sulphuretted, $1\frac{1}{2}$ cubic inches of sulphuretted hydrogen; the strongest chalybeate, $\frac{3}{4}$ grain of oxide of iron. The taste and appearance of these different waters are such as might be expected from their different chemical constituents,—tasting salt, bitter, inky, or smelling of sulphuretted hydrogen, as they contain common salt, purging salts, iron, or sulphuretted hydrogen in greater or less quantity. Mr. Edwin Lee, in his work on the "Watering-Places and Mineral Springs in England," says, however, of the sulphureous waters, "though they have, when first drawn, a slight odour of sulphuretted hydrogen, it soon passes off, and is perfectly dependent upon the springs passing through a layer of mud, or matter in a state of decomposition. It must not, therefore, be supposed that the so-called sulphuretted wells are analogous in their action with the class of sulphureous springs."

The Cheltenham waters are only used internally, but it is considered advisable to use warm baths occasionally. They are chiefly serviceable in derangement of the liver and stomach, in internal congestions, in hypochondriac and other valetudinarian states which arise from long residence in hot climates, the prolonged use of mercury, or anxious and sedentary employment. The presence of the purging salts with the salts of iron renders these waters very serviceable where the use of the generality of chalybeates might be dangerous; for while they promote the tone of the system, they at the same time relieve congestion, and are therefore admissible in cases of either general or local plethora.

The season for using the waters is the summer. The town is handsome, and the climate mild.

CLIFTON.

These waters are only of the temperature of 74°, and very little, or not at all, different from ordinary water as far as saline properties are concerned: indeed, Clifton is chiefly sought for its beautiful situation, mild climate, and pure air.

EPSOM,

A well-known village near London, which need be no further noticed than to say that a spring here is strongly impregnated with sulphate of magnesia, which has hence acquired the name of Epsom salt.

HARROGATE.

The waters at Harrogate are of various kinds; there are pure chalybeates, pure salines, pure, but weak, aperient salines, and sulphuretted salines. It is to these latter, however, that Harrogate owes its fame. The quantity of sulphuretted hydrogen in the strongest of these waters seems not to have been correctly ascertained; at least, while Dr. James Johnson states it at 1$\frac{7}{10}$ cubic inches in a pint, Dr. Saunders puts it at 2$\frac{3}{4}$. Whatever the exact quantity, the Harrogate waters are more strongly impregnated with this gas than any other springs yet used, and they sufficiently evidence its presence by their nauseating odour. As to all the other classes of springs, except the sulphureous, no more need be said of them than is said of waters of the same class under their particular headings. But as regards the sulphureous springs, it should be remarked that they contain a very slight amount of aperient salts, the only salt of this class being common salt, of which there are 108 grains to the pint. As, therefore, the action of the sulphuretted hydrogen is directly exciting, and as the aperient action of common salt is slight, these waters are certainly injurious in all inflammatory complaints, or where there is a tendency to local congestion, and should be carefully watched, even in chronic disorders, and their use combined with that of purgatives if necessary. The Harrogate sulphuretted waters are used externally and internally, and are chiefly celebrated for their efficacy in the treatment of cutaneous diseases,—such as lepra, psoriasis, herpes, &c.—when the use of the warm bath should be combined with the drinking. They are very useful, also, in carrying off the effects of a system suffering under the excesses of the table, and are beneficial in scrofula, scurvy, syphilis, and piles.

The situation of Harrogate is high, and the air bracing and exhilarating.

HARTFELL.

At this place, which is near Moffat in Scotland, there is a spring which contains a considerable quantity of sulphate of iron. (See Spa).

HOMBURG,

A town situated between Frankfort and Wiesbaden, near which are some mineral springs that have lately been much frequented. For mineral richness (chiefly common salt, and $\frac{1}{2}$ a grain of oxide of iron), combined with a great quantity of carbonic acid gas, these waters are almost unrivalled. What is said of Kissingen will apply to these waters. They are mostly taken internally, but are also used for bathing.

KISSINGEN.

This place has of late years been considerably frequented by the English. There are several springs, used both for drinking and bathing. The former contain some common salt, some neutral purging salts, a small quantity of iron and a great quantity of carbonic acid gas, the proportions being different at the different springs. The spring most used for drinking contains in the pint 62 grains of common salt, 20 grains of other saline matters, 2-3ds of a grain of iron, and 26 cubic inches of carbonic acid gas. It is drunk with advantage in cases of abdominal fulness, congestion of the liver, piles, constipation, and recent cases of gout accompanied with deranged digestion. The water which is most used for bathing contains 100 grains of common salt, 25 grains of Glauber's salts, and 30 inches of carbonic acid in the pint. These baths strongly excite the nervous and muscular system, and are efficacious in scrofulous glandular enlargements, obstinate rheumatic and calcareous disorders, torpidity, neuralgia, and paralysis. One of these bathing springs has the curious property of flowing and ebbing during two hours,—eight times in the course of twenty-four hours. The climate is rainy.

LEAMINGTON.

The springs at this place are similar to those of Cheltenham, the saline acting perhaps a little more energetically, and the chalybeate properties being very small indeed; though it was at one time supposed that a strong chalybeate spring had been discovered: but this seems not to have been the case.

Leamington became a very fashionable spa owing to the residence of an energetic physician; it still remains so, though perhaps not to the same extent as formerly. The climate is mild.

MATLOCK.

This is a village or small town in Derbyshire, on the river Derwent, romantically situated in the midst of wooded scenery and limestone rocks. It has been thought as well to give it a place among the mineral spas, as its name is, and has been for many years, associated with its waters. They really contain no amount of saline ingredients sufficient to produce any physiological effect, though they encrust the surfaces of substances immersed in them for some time. Their temperature is 68°, and they contain a minute portion of carbonic acid gas. They seem to have no action except as diluents, and as such have been recommended in cases where there is a tendency to gravel.

MOFFAT.

This is a village, about sixty miles from Edinburgh, which has a sulphureous spring. Its gaseous contents are in amount about half those of Harrogate, but the saline contents are greater. Its only sensible effect is that of a diuretic, but it is efficacious in a minor degree in the same cases as Harrogate water.

PYRMONT.

Pyrmont is a village in Westphalia, which has been long celebrated for its mineral water. It is a very highly carbonated chalybeate, the amount of iron contained in it being about the same as in the Spa water, that of gas being more than double. The earthy carbonates are also in far greater quantity.

SCARBOROUGH

Is chiefly known as an agreeable and healthy sea-bathing place. It has, however, some chalybeate springs, and some containing carbonic acid gas, others containing saline aperients: the latter are similar to the saline chalybeates of Cheltenham, but weaker, particularly in aperient qualities.

SEIDLITZ,

A village in Bohemia, where there is a mineral spring strongly impregnated with sulphate of magnesia, and containing also some muriate of magnesia. It gives name to the well-known Seidlitz powders, though these latter are not quite similar to the saline contents of the water.

SELTERS.

The spring of Nieder-Selters, a town near Frankfort-on-the-Maine, supplies the well-known beverage Seltzer water, which contains in the pint 16 grains of common salt, 15 grains of carbonate of soda, and 15 cubic inches of carbonic acid gas. It is cooling, exhilarating, and alterative, and is easy of digestion. It is employed in cases where there is a tendency to the formation of stone or gravel, in irritation of the urinary organs, and in chronic inflammation of the bladder.

SPA.

Spa is a town of Belgium, about thirty miles from Aix-la-Chapelle. There is a spring which is a highly carbonated chalybeate, containing in the pint 2-3ds of a grain of oxide of iron, and 15 cubic inches of carbonic acid gas, and but a a very small quantity of aperient salts, owing to which it is more heating and astringent than other chalybeates containing the same amount of iron. The country around Spa abounds in chalybeate springs, but in the town itself there are very few conveniences for bathing.

Spa is agreeably situated in a picturesque country.

TUNBRIDGE WELLS,

A picturesque spot within forty miles of London, which has been long celebrated for its mineral waters. They are pure carbonated chalybeates, as, with the exception of about 1-8th of a grain of oxide of iron, 1½ inches of carbonic acid, and half an inch of nitrogen to the pint, these springs contain no more saline matter than is found in most springs; and, although the amount of oxide of iron is small, this, owing to the presence of the carbonic acid, remains in solution at a temperature of even 140°; so that it really acts strongly even on persons in health, and so much so on invalids, that it should be carefully avoided by persons of plethoric habit, and when any inflammatory symptoms are present. Indeed, all that has been said of simple chalybeates will apply to the water of these wells. For these reasons, and because it is apt to cause constipation and fulness about the head, it is necessary to accompany its use by that of purgatives, and for this purpose an aloetic pill taken at bed-time is to be preferred to any saline aperient in the day-time. The Tunbridge waters have been found useful in all cases where pure chalybeates are recommended, particularly, as it would seem, in debility of the digestive organs causing dyspepsia, squamous disease of the skin, gravel, general languor, and uterine debility; on which last account Tunbridge Wells is much frequented by females. The scenery is beautiful, the air fresh and sweet, and the place dry, from the absorbent nature of the soil, and well protected from the north-east winds.

The access of air to the face should not be prevented by smothering the face in curtains or among bed-clothes, but care should be taken to be out of the way of draughts.

CLOTHING.—Faulty clothing is the frequent cause of derangement of health, either from compressing the body, or from affording insufficient protection from cold. Stays, shoes, and neckerchiefs, are the parts of dress by which most harm has been done. Tight stays seem at present to be luckily going out of fashion ; they render the breathing difficult, fetter the natural movements, and by pressure upon the chest, stomach, and abdomen, are the direct, evident, and frequent cause of disease of the heart, indigestion, and a permanently distorted shape. The male neck-covering, too, seems at present easy and sensible enough, but the time may again come when our necks may be bolstered and constricted, in the fashion in which Russian officers were ordered to dress, in order that their faces might look red, and give them a fierce and martial look. Head-aches and apoplexy follow upon this absurd practice. Cold and wet feet, from the circulation being obstructed by tight shoes, or their not being sufficiently clad, are also now luckily of rarer occurrence. Cold feet, hot and close rooms, exposure to sudden draughts and chills, and the violent change of dress from the present generally sensible clothing of the daytime, to that of the young lady in the scant covering of the ball-room, are often the immediate cause of eruptions, decayed teeth, colds, inflammation of the chest, and consumption. In fact, without entering more into detail, all that has been said in the present chapter amounts to this,—that a proper attention to diet, exercise, rest, and the temperature of the body, will keep most of us in health, while a neglect in these matters is the usual immediate cause of disease. The state of the bowels, too, should be attended to, though not with too strict a watchfulness ; indeed, total disregard in this respect is to be preferred to that habitual resort to opening medicines, which is too much the custom in this country.

WANT OF CLEANLINESS is a cause of ill health. The natural excretions of the skin, particularly where the body is covered with clothing, require mechanical means for their complete removal, and when these are not used the pores become clogged, and the excretions (the perspiration and oily matters) difficult. Hence, as the skin does not do its work, in expelling those matters from the body, which it is intended by nature to remove, either the other excretory organs are called on for extra work, or deposits take place. In this and other cold climates the skin is too much neglected. If so important an organ is seriously deranged, it is clear that most baneful effects must follow.

DAMP CLOTHES, &c.—Damp clothes are a common cause of disease. Catarrhs, rheumatism, inflammation, and consumption, have frequently their origin in this cause. If exercise be taken so as to heat the surface of the body, the bad effects may be avoided, but if not the most serious effects follow.

Damp beds, though perhaps not so frequent as damp clothes, are most fatal in their effects. For not only is the body at rest, and not, therefore, able by exercise to warm the surface and thus throw off the ill effect, as can be done with damp clothes, but while we are asleep it is, from physiological reasons, more open to any malign influence from cold or other causes. The catalogue of serious and fatal diseases which may be directly traced to this cause alone, is very long:—consumption, pneumonia, asthma, rheumatism, paralysis, or perhaps a long diseased life, with a crippled body. When a person doubts whether the bed he is about to sleep in is well-aired, or rather when he does not know for a certainty that it is so, he had better either pass the night out of bed altogether, or get in between the blankets with his clothes on. It is not sufficient that a bed should have been well-aired at some distant time when made up, but it should be kept free from damp, as it rapidly attracts moisture from the atmosphere.

Damp houses are another serious cause of ill health and disease. Coughs, asthmas, diseases of the lungs, and inflammation of the eyes, are often due to this cause. Houses damp from having been recently built are worse than any others, as not only are they longer in drying, but the smell of lime, paint, and other building materials, is injurious. No newly-built house should be inhabited until all the rooms have been exposed to thorough draughts, with good fires in them for some months. What has been said applies in a similar degree to rooms recently washed, and all underground dwellings.

As to the effect of sudden cooling of the body, whether by leaving a hot room for the cold external air, being exposed to it when heated by exercise, or plunging suddenly when hot into cold water, there are differences of opinion. The real effect seems to be as follows: By exercise the large vessels are put into violent action; the increased action of the lungs and capillary vessels follows; thus heat is engendered, and nature calls the excretory actions of the skin into play, in order to restore the balance of temperature of the body by evaporation from its surface; and if this evaporation is very violent it is condensed into sensible perspiration. Therefore, by suddenly cooling the surface, we close the pores of the skin, which are the safety valves of this increased production of perspiration and heat, and there is a sudden and violent revulsion and check upon the increased circulation of the blood, which, seeking to find a vent somewhere, may lead to engorgement and subsequent inflammation, to pressure and apoplexy, or to rupture of the small vessels, and spitting of blood, and sometimes to sudden death. After *violent* exercise, sudden cooling of the body is *always* highly dangerous; *gentle* exercise, however, is sometimes useful if the circulation be torpid, as it stimulates it into sufficient activity to re-act against the chill of the surface, and is so far beneficial.

When, on the contrary, the warmth of the surface is caused by external heat, sudden cooling merely has the effect of shutting those pores of the skin which the relaxation of the heat had opened. But as there is no internal cause for the opening of the pores, so no ill effects follow from their sudden closing. The same reasoning will apply to taking ice or draughts of cold water while hot; the stomach in this case being in the same condition as the skin in the above cases.

HABITS OF LIFE AND OCCUPATION have a direct effect in modifying the state of the health, and producing peculiar diseases. The habitual occupations of the agricultural labourer, the sailor, the sportsman, the clerk, the student, and the needle-woman, of course modify their constitutions, so that they will be differently affected by the same disease and the same medicine, as well as be liable to different diseases. Without entering into the minute distinctions between the bodily constitutions of individuals of different occupations, we may in the first place consider them as grouped into those who have too much exercise and exposure to the air and light, and those who have too little; those who overwork the body, and those who do not use it enough; those who use the mind too much, and those who let it stagnate; those who rest and sleep too much, and those who rest and sleep too little; the over-fed and the under-fed. The disorders of each of these groups, except the over-studious, have been, perhaps, nearly sufficiently indicated in the preceding remarks. But it may be as well to sum up here.

Those who live in towns are reduced in strength and vigour, and are predisposed to scrofulous affections, consumption, typhoid fevers, and diseases characterised by want of tone and power; they consequently bear depletion worse than others. Among those employed in-doors in towns these effects are still more marked, and again still more among those exposed to late hours and over-work, such as the shirt-makers and needle-women of London. Those, on the contrary, who have an over-supply of oxygen, and a circulation constantly kept in the most active state, are liable to diseases of the inflammatory character. However, the rate of mortality of the population of the healthiest rural districts is only three-sevenths of that of the inhabitants of the most crowded and unwholesome towns; among the latter 3½ per cent. of the population die annually, in the former only 1½: and though it by no means follows of necessity, yet it is not improbable that the average state of health (and this is of far greater consequence than the rate of mortality) in the two cases is in the same proportion of 7 to 3.

Among the idle well-to-do, whom we may call the luxurious classes, the state of health again compares very poorly with that of the agricultural labourer, when he is well-lodged and not over-worked. The diseases of persons of this class also are generally of the inflammatory kind, but there is none of the tone and power of rallying which is found among the rural population.

Any occupation in which a constrained position is usual, is marked by peculiar disorders: thus tailors have not unfrequently a partial loss of the use of the lower extremities; shoe-makers have frequent affections of the heart, lungs, and stomach from the constant pressure of the last and lap-stone. Even house-maids suffer from what is called the house-maid's-knee, or white-swelling.

Those also who are exposed to any noxious vapours, or matters suspended in the air, have peculiar disorders. Painters suffer, and have given the name to, painter's colic; the Sheffield dry-grinders live generally a very few years, being carried off by consumption, caused by the particles of iron breathed into the lungs; cooks suffer from piles; chimney-sweeps from cancer of the scrotum; coachmen and cabmen from chest complaints, rheumatism, and affections of the eyes.

We must close this chapter, as hinted above, with a few remarks upon those who over-task the intellect, or are too much under the dominion of the emotions or passions. With regard to the latter, when it is recollected that the play of every sentiment, feeling, or passion, is accompanied by a physical action of the actual matter of the brain and nervous system, it is easy to understand how an over-indulgence in any emotion should produce disease of the functions, and even the structure of the brain, and give rise to any or every symptom of nervous and mental derangement from irritability to imbecility and mania. The former, or over-studious, in the first place, generally suffer from the disorders incident to a sedentary life, including of course the want of air and exercise. Again, sitting with the head bent downwards, and the chest against the table or desk,—or with the back bent and the book upon the chest, so that the whole viscera of the chest and bowels are compressed,—the pressure upon the vessels and nerves of the upper part of the thighs, and not unfrequently the hot seat, must, when long continued, have the same effect upon the constitution. To these causes may be added the over-tasking of the eyes. Hence costiveness, indigestion, hypochondria, a stooping figure, want of tone in the system generally, and, not unfrequently, consumption. The rules for mitigating some of the evil effects of these causes are sufficiently obvious, viz., to avoid leaning against the table and to stand and sit at the desk alternately; to use the eyes by candle-light as little as possible, and then with a shade over the light; to lie down rather than lounge doubled up in an easy chair, and to prefer a cane-bottomed chair to cushions; and if the work demand thinking, research, and writing alternately, to make the researches standing, to write down the heads of the subjects to be considered on a small piece of paper, and think over the subjects while walking about with it in the hand. This advice may seem puerile as well as obvious, but no advise is puerile which inculcates a beneficial custom not generally adopted. Dr. Buchan, in his "Advice to the Sedentary," says, "It may seem romantic to recommend gardening." It *may* be romantic, but the practice is beneficial, and, if so, the recommendation is useful. The faculty of thinking and reasoning (that is, the intellectual faculty) resides in the brain, which organ is also the seat of the emotions and passions. When, therefore, we think, we positively consume a material portion of the substance of the brain, just as much as we consume muscular structure by the exercise of motion. Any over-exercise of thought, therefore, will fatigue us as much as the over-exercise of our muscles, and impair the nervous energy more, inasmuch as a more important organ, and one so closely connected with the nervous system, is employed. It would be scarcely necessary to make this remark, except that it is a very constant opinion among students, that to complain of fatigue from mental employment is mere idleness, and that such employment does not really fatigue or waste the physical man. Though not to so great an extent as the over-exercise of the emotions or passions, still, to a considerable extent, the mere over-thinking injures the brain, and causes many disorders. Intense thought, particularly upon abstract subjects, cannot be continued in the majority of cases many years (for such persons as Kant, Hobbes, and Jeremy Bentham must be considered as exceptions, although Coleridge scarcely is), but those who indulge it become, after some time, dull, heavy, misty, and *apparently* stupid, which in all that concerns the ever-occurring demands of daily life they certainly are. Diseases of the liver, kidneys, and digestive organs, are the not uncommon effects of an extreme addiction to study; and not less so are the whole train of nervous disorders, sometimes ending in utter mental prostration and aberration of intellect. The best preventive against these evil effects is, to give more rest to the brain by abstaining from such intense application, and by sleeping more (for late hours are among the habits of such persons); or, if this course be impracticable, from the inability to sleep, then the second preventive is still more necessary and more effectual, namely, the exercise of other parts of the mind and brain. This may be done by varying the kind of intellectual exercise, as by exchanging the reasoning powers for the memory: thus the metaphysician or pure mathematician should relax with history; the lawyer, with natural philosophy; the philologist with poetry, &c. &c. But it may be effected in a still better manner by the enjoyment of music, or by calling the gentler emotions into play, as that of laughter, by farces, &c.; or best of all, by arousing the social and human affections, as by resorting to cheerful company, and the society of young persons.

§ 3. EVIDENCES TO THE DISEASED PERSON.

Upon this point little need be said; for by disease, in the sense in which we are now employing the term, is not meant merely the temporary condition of being "not quite well;" —in such cases, the feelings of the patient require no explanation by others. But if the pain, uneasiness, or impaired power, local or general, should be excessive, or occur frequently, it is probable that there is some serious derangement of the function or structure of some important organ, or some serious general disorder. In such cases, the only additional means of detecting disease are those of the medical man. These will be considered in the following section. However, it may be as well to remark, that there are symptoms which may escape the attention of a person in a gradually increasing bad state of health, by a timely notice of which he may be induced to have resort to medicine, or to consult his medical adviser, and thus prevent the access of severe illness or disease.

A gradually increasing dislike to exertion, or an increasing restlessness in either mind or body, if after diligent self-examination they should not appear to depend upon mere self-indulgence, should be considered as evidences of some physical disorder, to which the attention of the physician may be called.

Such minute attention to our bodily state is nevertheless, upon the whole, perhaps, more productive of evil than good, as persons in general (and certainly such as read medical works) are more likely to be morbidly alive to, and to exaggerate the importance of, any unusual state of the body, than to be culpably regardless or negligent of it.

§ 4. Evidences to the Medical Man.

The medical man has further means for the detection of disease. He will, of course, equally with the patient himself, pay attention to the palpable and ordinary instances of diminished power, uneasiness, or pain in any of the external organs or functions; as, for example, a swelling, a pain in any part of the body, or an expectoration of blood. As to the first, he will observe the shape and colour of the swelling; he will, by touch, examine whether upon pressure it retains, for any time, the mark of the finger, which is called pitting upon pressure; or whether it is elastic, or "fluctuates," as if some fluid were underneath, &c. He will observe whether pain increases upon pressure or not, the former circumstance denoting that the pain is not on the surface, *i. e.* in the skin, muscles, or bones; and as to expectoration of blood, he will inquire as to the manner and times of such expectoration, and he will notice the colour, the mixed or pure state of the blood, and its condition in other respects as to frothiness, &c., and thus direct his judgment as to whether it comes from the lungs or merely from the throat or fauces, and whether from the arteries or the veins, &c. &c. There are also particular conditions of the secretions and excretions, of the appetite, the tongue, the pulse, the respiration, and the action of the heart, which are to him very efficient guides for the detection of disease. He has also extra methods of directly observing what goes on in the interior of the body, as by auscultation and percussion, &c., and of becoming acquainted with changes in the secretions and excretions, not observable by the unassisted senses,—as by the microscope or chemical tests. This increased knowledge of what to observe, and the use of these extra means of observation, constitute the art of the physician, by which he arrives more or less accurately at a correct discrimination of the disease (or diagnosis), and a prediction of the probable result (or prognosis). Without attempting any classification of these means, we shall inquire into the examination of the tongue, gums, bowels, alvine dejections, vomiting, perspiration, respiration, circulation, and pulse.

THE TONGUE may be red or pale, clean or covered to a greater or less extent with fur, firm or flaccid, pointed or broad at the end, and protruded in a peculiar manner. In inflammation of the lining of the stomach and alimentary canal it is very red, as also in scarlet fever, and, when clean, in typhus fever. It is pale in cases of bloodlessness, and livid when the respiration is much disordered. In inflammations and the early part of fever it is covered with thick white fur; and with a thick brown fur, with a crack down the middle, in the later stages of fever. The appearances of the papillæ also are instructive indications to the physician. As to the mode of protrusion, the tongue being a collection of muscles, of course partakes of the affections of the muscular system; so, in cases of extreme weakness, it is tremulous, slowly and stupidly protruded when stupor is present, and on one side in paralytic affections.

THE GUMS AND LIPS are livid in difficult respiration, and their state is in other respects indicative of peculiar disorders.

THE STATE OF THE BOWELS and their dejections must also be inquired into; the latter may be fluid, or the reverse, pale from too little bile, green from too much, or very dark and offensive from morbid secretions of the liver; they may contain mucus, lymph, pus, blood, or undigested matter; and their state, when accompanied by other signs, is a very valuable guide to the physician.

VOMITING may be caused by pressure,—as in pregnancy; by obstruction to the passage of the food from any morbid growth, or from strangulated hernia; by irritation of the stomach itself; or by some affection of the brain. The matter vomited may, like the alvine dejections, be mixed with various other matters, and the fæces themselves may sometimes be ejected in this way.

THE SKIN.—The over or under action of this important organ of course teaches us a great deal. Thus, the quantity and periods of the perspiration should be noticed; the heat or coolness of the surface at the same time; and other guides must help us as to the conclusion whether the state of the perspiration is caused by that of the skin or the converse.

ODOUR OF BODY, &c.—This may be the proper place to mention that the sense of smell may be very useful to us, many diseases being remarkably characterised by their odour. The odour of the breath may be caused by decaying teeth, by a morbid state of the stomach and bowels, or by badly reduced and putrefying food. In this latter case it is frequently observed in healthy persons, whose assimilating powers are perfect, but whose reducing powers are deficient. The odour of the body during consumption, acute rheumatism, and suckling, is characteristic; and in certain diseases the smell of damp earth is very remarkable.

THE URINE may be examined with great advantage to the diagnosis of disease, and the microscope has lately been applied with great success for this purpose; by it the various salts and other foreign or abnormal matter (as albumen) may be most readily observed. Chemical tests, too, are here very useful. For the indications which the condition of the urine affords, the reader is referred to the accounts of the diseases under their special heads in the Third Part.

THE STATE OF THE CIRCULATION is most frequently and readily arrived at by an examination of the pulse or beat of the artery at the wrist. To do this with effect the agitation of the patient should be allowed time to subside, and the fingers should be placed on the wrist with sufficient pressure to observe the frequency of the beats, their degree of regularity, and their vibratory or non-vibratory character; and also the fulness, compressibility, or hardness of the artery, or the opposite qualities. By the various observed combinations of these characteristics we may arrive at a certain amount of knowledge of the state of the blood and circulation. To give one example: a pulse frequent, full, hard, and vibrating, would show by the three first characters that the artery of the wrist is strong and full, and the blood natural: while the last would indicate something wrong in the main arterial trunk,—perhaps that there was dilatation and aneurism. With regard to the frequency of the pulse in health, it varies from 180 per minute, the maximum in the newly-born child, to 50, the minimum at middle age. The average of the healthy adult male is from 65 to 75, of the adult female from 75 to 85. In cases of acute inflammation it is said that 250 have been counted; and cases are reported of epilepsy and syncope where it has reached as low as 14 and 7. The beats of the pulse cannot be more frequent than those of the heart, but they may be less frequent; for the beat of the heart may be too feeble to affect the artery at the wrist. Age, temperament, posture, the hour, food, emotions, temperature, and the density of the air, &c., have all their effects upon the frequency of the pulse. Exertion, food, heat, debility, rarity of the air, want of rest, and the exciting passions, increase the number of beats: the opposite causes produce contrary effects.

CHAP. III.—PATHOLOGY.

Having formed some idea of the body in a state of health, and having examined some of the causes which tend to disturb that state, we have now to consider a few of the more prominent unhealthy conditions of the organs and functions. They will be taken in the following order:—1st, Pathology of the Fluids; 2nd, Structural Pathology; 3rd, Pathology of the Circulating Organs; 4th, Pathology of the Nervous System

§ 1. Pathology of the Fluids.

The blood in disease differs in many ways from healthy blood. Its quantity is increased in plethora, and diminished after hæmorrhage. It is hotter in severe inflammations and inflammatory fevers; colder in languid states of the circulation, and when imperfectly decarbonised; redder, from an excess of globules, in states of rapid circulation; paler, from a deficiency of the globules, in anæmia; and more purple in imperfect oxygenisation. The proportion of fibrin is increased in acute inflammation, particularly of the serous membranes, in pneumonia, in phthisis, in pregnancy, and very remarkably in acute rheumatism: it is diminished in uninflammatory fevers, cerebral congestion, scurvy, hæmorrhage, and inflammation of mucous membranes. The quantity of albumen of the serum is diminished in Bright's disease of the kidney, and of its salts in typhoid fevers and cholera. The blood may contain matters not naturally existing in it; as the elements of the different secretions, urea, colouring matter of bile, free carbon, &c., whether as the result of their excessive production during assimilation, or of their insufficient excretion; or it may contain substances not contained in any secretion, as sugar, and perhaps oxalic acid, from mal-assimilation; or it may absorb its own morbid secretions, as pus (see p. 85). Various poisons and foreign substances, as alcohol, opium, arsenious acid, lead, mercury, iodine, may be also detected. The formation of the clot of unhealthy blood drawn from the body differs in many ways from the healthy clot. Some hours after the abstraction of blood the fibrin of the liquor sanguinis contracts, presses out the serum, and, entangling the red particles, forms a red clot, which floats in the serum. Now accordingly as the fibrin contracts more or less slowly, and as the various constituents of the blood vary in their relative quantity, weight, &c., so will the clot vary in density, quantity, weight, colour, &c. The most remarkable appearance of the clot is when it is "buffed and cupped." If the red particles have a greater tendency to coalesce than usual, or if they be heavier, or the fibrin lighter; if their number be diminished, or the quantity of fibrin increased, they will fall to the bottom of the clot, and the upper part of it, consisting of fibrin only, will be pale or nearly colourless, or "buff," as it is called: if at the same time the fibrin contracts more strongly than usual, the top of the clot will be depressed in the middle, and its edges raised and puckered, *i. e.* it will be "cupped." The buffed and cupped clot occurs in some diseases, particularly acute rheumatism, from excess of fibrin; in others, as chlorosis, from a deficiency of red globules.

THE URINE is increased or diminished in quantity as the transpiration from the lungs and skin is suppressed or augmented. It is increased in the cold stage of fevers and hysterical paroxysms: it is diminished in diarrhœa, cholera, hæmorrhage, dropsy, the inflammatory stage of fever, and inflammation of the kidney. Its natural solid constituents may be in excess, as urea and uric acid, the latter being frequently deposited as yellow or reddish gravel, and sometimes forming stone in the bladder. It may contain also other matters, one or all of the elements of which exist in healthy urine; as urate of ammonia in gout, or oxalate of lime, of which the mulberry calculus is composed. Sub stances resulting from mal-assimilation are also found; as chyle, fat, milk, bile, and, in diabetes, sugar. The blood and its constituents, fibrin, albumen, &c., are also sometimes present. Secretions of the membranes of the urinary organs themselves, as pus, epithelial scales, mucus, and fibrous casts of the urinary tubes, entangling any of the above substances, may be detected. Lastly, semen, gonorrhœal discharge, &c. may be poured into the urine. Its colour varies with the different substances found in it. Thus it is bluish-white and turbid when chyle, milk, mucus, or pus, are present; green-yellow from bile; purplish in inflammatory diseases; orange-coloured in hectic fever; brick-red from blood and various foreign substances, as rhubarb, madder, &c. Its weight also varies in various disorders; thus, in diabetes it may be one-thirtieth greater than the average weight in health.

THE SWEAT is diminished when the aqueous discharge through the lungs and kidneys is increased, and the converse: it also varies in the different stages of fevers, &c.; but the variation depends upon the state of the circulating system. When there is a determination of blood to the skin, and at the same time debility of the capillaries, as in hectic fever, the perspiration is increased: also in extreme debility, even without much blood determined to the surface, as in the sweats preceding death: it is greatly increased in acute rheumatism and enlarged heart.

§ 2. STRUCTURAL PATHOLOGY.

INCREASED SIZE.—The most simple morbid structural change consists in enlargement of any organ from some mechanical cause; as that of the stomach, intestines, or bladder, from habitual distension; or that of the veins of the extremities, from pressure between them and the heart. An organ may be also enlarged by hypertrophy (or over-nutrition); as the heart, when its increased action is required to overcome some obstacle to the circulation, or to supply the demands of constant excessive muscular exertion; or the mucous membrane of the bladder when exposed to the constant irritation of gravel or stone: this over-nutrition being sometimes confined to one element of the structure, as in excessive deposit of earthy matter in bone.

Diminished size.—Structures may be under-nourished, or suffer from atrophy, from some mechanical cause obstructing the flow of blood to the organ; or from its necessary constituents being deficient in the blood, owing to mal-assimilation; or from its not being sufficiently used, as when the muscles and other structures dwindle from not being exercised. Atrophy may exist as to only one constituent of the structures, as in mollities ossium, where the earthy matter is deficient in the bones.

Structural change may arise from common inflammation, or from some specific cause; as of the lymphatic glands, from suppuration in syphilis, &c.; of the skin in febrile exanthemata; and of various organs from deposits of pus in inflammation of the veins.

Morbid growths may be owing to mal-selection by the cells of the structure, or to the supply of unhealthy material by the blood: these morbid growths may consist of structures which naturally form part of the body, or of such as are quite foreign to the healthy body. The nature of the former is usually determined by that of the structures in which they are found: thus they resemble serous membranes in the pleura, cartilage in the joints, and muscle in the uterus. Fat is a frequent deposit, sometimes in the epithelial cells of the secreting organs, as those of the liver, and those of the kidney in Bright's disease; sometimes in the areolar tissue connecting the vessels of these organs. The fatty deposits may at first only increase the size of the organ, but ultimately they press on the blood-vessels, and lead to atrophy and diminished size. Fat is also deposited in other organs, as in the substance of the heart, or between the coats of the arteries, thus impairing their elasticity, and ultimately, perhaps, obliterating their cavities and leading to the atrophy of the organ supplied by them, or ulcerating through their coats, and causing death from hæmorrhage; or in the vessels of the brain laying the foundation for the softening of its substance. The deposit of fat sometimes forms a bed for that of earthy matter, leading thus to *calcareous degeneration* of the muscles, and to hard, uneven tumours inside the large arterial tubes. The general cause of the morbid deposition of fat would seem to be the imperfect oxygenation of the venous blood, resulting from an insufficient supply of good air, &c.; or, in the case of the spirit-drinker, from a too great supply of liquid hydro-carbon.

Other unhealthy deposits consist of *cartilaginous* matter on the internal surface of the arteries, as in the valves of the heart and aorta; of *calcareous* matter having the appearance of bone, in the heart and arteries, without previous fatty degeneration; and of *fibrous* deposits, which also sometimes exist in the lining membrane of the heart.

The morbid growths of *unnatural* structures frequently, and perhaps always, arise from a morbid state of the blood itself, the liquor sanguinis furnishing material for the formation of cells differing in shape and character from healthy cells, the process of nutrition otherwise going on as in the healthy state, and resulting in the formation of an unnatural structure. These morbid growths may affect almost all the organs, though they generally show a preference for particular structures; they are usually traceable to hereditary predisposition, and they tend to destructive inflammation of the part affected. If they do no more than this, they are called non-malignant; but if they also extend into the neighbouring structures and destroy them, if they follow the absorbents and attack the lymphatic glands, or if after removal they reappear in the organ itself, or in one connected with it through the absorbents, they are called malignant.

Of *non-malignant* deposits, the most remarkable is *tubercle.* It occurs in scrofulous subjects, and is a kind of unhealthy lymph, either grey, translucent, and dense, or yellow and opaque. The former kind is found in detached portions, as in the air-cells of the lungs (called miliary tubercles), or on the surface of serous membranes. The yellow tubercle is found in the same situations, and also on the mucous membranes, in the substance of several organs, in the follicles of the intestines, and in the lymphatic glands, &c.: it exists in distinct masses, or diffused throughout the texture of the organs, so that they seem to have degenerated into it. Both kinds of tubercle, when examined under the microscope, seem to consist of granules and cells; the yellow variety contains also oil-globules. The tubercular matter is sometimes deposited before birth, but most frequently between puberty and middle age. Sometimes it forms an abscess, and is discharged as a foreign body: sometimes it is converted into earthy matter, and may remain quiescent. The absorbent glands, especially those of the neck, are frequently subject to scrofulous enlargement and suppuration; as are also the mesenteric glands in tabes mesenterica.

Malignant growths may be all called *cancerous*. Cancer has the qualities already referred to as characteristic of malignant growths, and generally consists of cysts growing in each other, having various contents, and attached to the neighbouring parts. *Malignant melanosis* is a black deposit (sometimes fluid), containing free cells, unattached to the neighbouring structures. The colouring matter abounds in carbon. The usual seat of this deposit is the liver, but it is also found in the other glandular organs, as well as in the eye, skin, brain, and lungs.

§ 3. PATHOLOGY OF THE CIRCULATION.

The greater circulation of the blood we have seen to be due partly to the action of the heart, which at one moment propels a certain portion of pure blood through the arteries into the capillaries in the minute structure of every organ, and the next moment receives the same quantity back through the veins, which are a continuation of the capillaries; and partly to the vital action of the cells of nutrition and secretion, which attract from the blood, through the walls of the capillaries, the necessary elements for their functions, giving up again in return the decayed but still useful matter to be returned circuitously by the lacteals into the blood, or removing hurtful matters from the body so as to keep up the balance of the quantity as well as purity of the blood.

PART III.—PRACTICE OF PHYSIC.

In this part of the work it has been thought advisable to begin with diseases of children; other diseases then follow in alphabetical order.

DISEASES OF CHILDREN.

In order to trace diseases from their original cause, it will be better to take a view of the general sanitary management of mankind during the state of infancy. In this period of life the foundation of a good or bad constitution is commonly laid; it is, therefore, of importance that parents should be well acquainted with the various causes which may injure the health of their offspring, in order, if possible, that they may be the better enabled to avert them.

It appears from the annual registers during the last century, that almost one half of the children born died before they had attained their twelfth year. Dr. Clarke* states that of all the children born within the districts comprehended in the bills of mortality betwen 1760 and 1800, nearly a fourth died under two years of age, and that of the survivors about a fifth died in the succeeding eight years.

From the weekly returns of births and deaths in London and its environs for the years 1851-52, published by authority of the Registrar-General, the proportionate number of deaths is not so great, as more than one-half of the children attain the fifteenth year. From the same source it appears that the mortality of children under five years of age has diminished within the last sixty years from 51½ per 100 to 25·8 per 100.

The sanitary improvements suggested by medical men, and the exertions of benevolent individuals, assisted by the Government, in clearing and opening dense localities, in erecting public baths and wash-houses, and in forming improved lodging-houses for the labouring classes, have done much good: it is also more common than formerly for mothers of all grades to suckle their own children; added to these causes, the more careful supervision and ventilation of workhouses have tended, and are tending, to diminish the comparative mortality of children in London and its vicinity.

---

* "Commentaries," p. 3.

A certain amount of mortality during infancy appears to be inseparable from the constitution of mankind, which is not explicable from what occurs in the animal creation generally. According to some it is a natural evil: but it hardly seems consistent with the goodness of the Almighty to suppose that so many children are brought into the world only that they may die at an early period of their existence.

Dr. Combe says, "taking the average of the various countries of civilized Europe where science has made the greatest advances, and the comforts of life are most abundant, and where the treatment of the young is most rational, two out of every nine infants ushered into the world die within the first year. Here, then, there is unquestionable evidence of the fact, that a great mortality prevails in infancy, even among the most civilized communities and under what are considered the most favourable circumstances; and the question naturally presents itself,—Whether this mortality constitutes a necessary part of the arrangement of Divine Providence, which man can do nothing to modify; or, on the contrary, proceeds from secondary causes purposely left to a considerable extent under our own control, and which we may partially obviate or render innocuous by making ourselves acquainted with the nature of the infant constitution, and carefully adapting our conduct to the laws or conditions under which its different functions are intended to act?"

During infancy the body is much more susceptible than in adult life, and the sympathy of one part with another is much more marked and extensive, so that one organ is rarely disturbed without the whole frame being more or less affected.

At this season of growth all the powers of the system are directed towards the building up and perfecting the various organs constituting the body, and every organ in its minutest particle is undergoing a constant change; the supply nevertheless exceeds the waste, and the body accordingly continues to increase in bulk.

In the adult the structure is complete, and will continue the same from day to day, independent of adventitious causes. Such, however, is not the case with the infant, who acquires by degrees the power to feel, to see, and to observe, and whose body is undergoing daily variations to adapt it for the new functions it is destined to perform, as well as increasing in size and strength.

In these progressive stages, the advance made in the organs of animal life is particularly observable. The senses are aroused, and successively and rapidly expand. Perception is evinced, and reflection gradually succeeds. Thus endowed the child is competent to voluntary efforts; and muscular power is proportionably developed and brought into action. The several faculties improve in proportion as they are exercised, and mutually aid each other, by confirming, or correcting, the impression received by each.

A knowledge of these peculiarities of infancy will serve as a guide in directing us rightly in the management of children in health and disease.

This view of the infant economy would lead us naturally to expect that the great activity pervading the whole body, the peculiar susceptibility of its nervous system, and the abundant supply of blood-vessels, should predispose it to the sudden occurrence and to the rapid progress of disease, and frequently to a fatal termination during this period, when organic change so readily takes place. Disease not only deranges the affected organ, but disturbs the functions of the system generally, and arrests for a time the due working of the machinery of the body. There are some periods when the system is more liable to disturbance than others, as during dentition, at which time the brain is undergoing a rapid process of growth, and the mucous membrane of the bowels becoming more developed, while it not unfrequently happens that the food has been about the same time changed from the breast-milk to some artificial food. All this it is important to keep in mind, the better to enable us to combat the contingencies of this period.

The great activity which pervades all the organs and functions, while it predisposes to disease, excites at the same time a peculiar reparative energy or power; in consequence of which the risk of infantile diseases is much diminished when the acute stage of the disorder has passed by. The danger to be dreaded in diseases at this age is from their rapid progress in the first instance: this being arrested, although they may subside into the chronic form, (which is not so likely as in the adult,) the infant has more chance of recovery than the adult even if reduced to great extremity.

Fulness, or redundance of fat, the result of over-feeding, does not so often give rise to disease as in the adult; the superabundant material being consumed in the active processes of growth which are going forward, and often otherwise spontaneously reduced by increased excretions. The plump child is a beautiful and natural object, and is not so prone to disease as the skinny, pale infant, who has been drugged into a state of delicacy.

The transference of disease from one part to another is by no means unfrequent in the child in specific eruptive diseases, such as measles and scarlet fever, &c. When in the former disease the chest, in the latter the head, is disposed to be affected, this change is much to be dreaded; but under other circumstances, where an increased action of the alimentary canal is set up, it is not so alarming as it is frequently considered.

Some diseases, as hydrocephalus and scrofula, are congenital; and there are others which appear hereditary, as hydrocephalus, croup, and bronchial affections.

Children, indeed, are liable to many disorders which, if not peculiar to them, are very much modified by the circumstances of infancy and childhood, and which will often prove dangerous, and even sometimes fatal, notwithstanding the best care and attention.

On the other hand, they possess an immunity from the long train of mental, nervous, and dyspeptic disorders to which adults are subject.

Although infants are liable to many formidable and fatal diseases, yet a great many of those incidental to the period may be averted: some are produced by ignorance and mismanagement; hence a moderate share of practical knowledge, watchfulness, and judicious care, are really of more avail in warding off disease and its results than is generally believed.

Among the frequent causes of ill-health in children, may be mentioned *irregularities of diet* or *improper food*, and the consequent derangement of the stomach and bowels. *Exposure to cold or damp* and vicissitudes of temperature, which are a fruitful source of disease at all periods of life, are more particularly so in childhood, where the powers of generating heat and resisting cold are very feeble. *Deficiency of air and light* is extremely pernicious to the child, and productive of subsequent delicacy of constitution in the adult, evoking, if not generating, scrofula.

From what has been stated, it would appear evident, that very many of the diseases which are destructive of infant life may be warded off by care and appropriate treatment, and it will need no argument to convince every parent that no means should be neglected which tend to so desirable a result. The first step to be considered, in order to attain this result, is the production of a healthy offspring; and, therefore, the mother's health during pregnancy should be properly managed. It may here be observed, that the most really healthy period of a woman's life is during pregnancy and suckling, where these states are well managed. A pregnant female should, therefore, take such sufficient nourishment, and exercise in the open air, as conduce to keep her in vigorous health, and enable her to give birth to a healthy infant, and render her afterwards competent to support it.

The nature or quality of the food should be that which she knows by experience to be most suitable and agreeable to her taste; we would say, for example, a due portion of meat, vegetables, and bread. It often happens, that the taste of women during pregnancy is somewhat whimsical; if this be not for unwholesome food, there is no reason why it should not be indulged in. As to drinks, the choice depends on habit, but as a general rule, the less stimulating the drinks are, the better. Excess of all kinds, both in eating and drinking, is to be avoided. Tight lacing, which compresses the viscera, should be scrupulously shunned, in order that the womb may have unrestrained power of expansion, and the organs of digestion and respiration freedom to perform their proper functions: above all, the breasts should be kept cool and lightly covered, so that the nipples may be enabled to project.

There are very few mothers who cannot nurse their own infants; nevertheless, there are some who, however willing they may be to fulfil so desirable a duty, yet from delicacy of constitution or defect of breast are not capable of suckling. There are others, as the highly hysterical, or those of a scrofulous habit, or those possessed of extreme mental susceptibility or other constitutional diseases, who ought not to do so.

Every mother who can, ought to perform so tender and agreeable an office. But supposing it to be out of her power, she may still be of great service to her child; for the business of nursing is by no means confined to suckling, as there are a number of other little attentions necessary for the child, which the mother ought at least to see done. Many advantages would arise to society, as well as to individuals, from a mother's fostering care. She is, and ought to be, the natural guardian of her infant's happiness, and the superintendent and director of its mind as its powers become unfolded.

The more opulent, by suckling their children, would remove the temptation to which poor women are exposed, of abandoning their own to suckle those of the rich for the sake of gain; by which means society loses many of its most useful members, and mothers become in some measure the destroyers of their own offspring. Not more than one in twenty of those children who are thus abandoned by their mothers, live. For this reason, no woman should be allowed to suckle another's child till her own is either dead or fit to be weaned. A regulation of this sort would save many lives among the poor, and could do no harm, as most women who make good nurses are able to suckle two children in succession upon the same milk.

A mother who abandons the fruit of her womb, as soon as it is born, to the sole care of a hireling, hardly deserves that name. A child, by being brought up under the mother's eye, not only secures her affection, but may reap all the advantages of a parent's care, though it be suckled by another. How can a mother be better employed than in superintending the nursery? This is at once the most delightful and important office; yet the most trivial business or insipid amusements are often preferred to it! A strong proof both of the bad taste and wrong education of modern females.

It is indeed to be regretted, that more care is not bestowed in teaching the proper management of children to those whom Nature has designed for mothers. This, instead of being made the principal, is seldom considered as any part of female education. Is it wonderful, when females so educated come to be mothers, that they should be quite ignorant of the duties belonging to that character? However strange it may appear, it is certainly true, that many mothers, and those of fashion too, are as ignorant, when they have brought a child into the world, of what is to be done for it, as the infant itself.

Tacitus, the celebrated Roman historian, complains greatly of the degeneracy of the Roman ladies in his time, with regard to the care of their offspring. He says, that, in former times, the greatest women in Rome used to account it their chief glory to keep the house and attend their children; but that in his day the young infant was committed to the sole care of some poor Grecian wench, or other menial servant.—We are afraid, wherever luxury and effeminacy prevail, there will be too much ground for this complaint.

Were the time that is generally spent by females in the acquisition of trifling accomplishments, employed in learning how to bring up their children; how to dress them so as not to hurt, cramp, or confine their motions; how to feed them with wholesome and nourishing food; how to exercise their tender bodies, so as best to promote their growth and strength: were these made the objects of female instruction, mankind would derive the greatest advantages from it. But while the education of females implies little more than what relates to dress and public show, we have nothing to expect from them but ignorance, even in the most important concerns.

Did mothers reflect on their own importance, and lay it to heart, they would embrace every opportunity of informing themselves of the duties which they owe to their infant offsprings. It is their province, not only to form the body, but also to give the mind its most early bias. They have it very much in their power to make men healthy or valetudinary, useful in life or the pests of society.

But the mother is not the only person concerned in the management of children. The father has an equal interest in their welfare, and ought to assist in every thing that respects either the improvement of the body or mind.

It is a pity that men should be so inattentive to this matter. Their negligence is one reason why females know so little of it. Women will ever be desirous to excel in such accomplishments as recommend them to the other sex. Men generally keep at a distance from the smallest acquaintance with the affairs of the nursery, and would be shocked to be thought to know anything about them. Not so, however, with the kennel or the stables; a gentleman of the first rank is not ashamed to give directions concerning the management of his dogs and horses, yet would blush were he surprised in performing the same office for that being who derives its existence from himself, who is the heir of his fortune and the future hope of his country.

OF DISEASED PARENTS.

One great source of the diseases of children is, the UNHEALTHINESS OF PARENTS. It would be as reasonable to expect a rich crop from a barren soil, as that strong and healthy children should be born of parents whose constitutions have been worn out with intemperance or disease.

Hereditary peculiarities and resemblances are commonly transmitted by parents to their children; and in the same manner is disease, or rather the predisposition to it, inherited from one or both parents.

An ingenious writer observes, that on the constitution of mothers depends originally that of their offspring. No one who believes this, will be surprised, on a view of the female world, to find diseases and death so frequent among children. A delicate female, brought up within doors, an utter stranger to exercise and open air, who lives on tea and other slops, may bring a child into the world, but it will hardly be fit to live. The first blast of disease will nip the tender plant in the bud: or should it struggle through a few years' existence, its feeble frame, shaken with convulsions from every trivial cause, will be unable to perform the common functions of life, and prove a burden to society.

If, to the delicacy of mothers, we add the irregular lives of fathers, we shall see further cause to believe that children often suffer from the constitution of their parents. A sickly frame may be originally induced by hardships or intemperance, but chiefly by the latter. It is impossible that a course of vice should not spoil the best constitution: and did the evil terminate here, it would be a just punishment for the folly of the sufferer ; but when once a disease is contracted and riveted in the habit, it is entailed on posterity. What a dreadful inheritance is the gout, the scurvy, or the king's evil, to transmit to our offspring! how happy had it been for the heir of many a great estate, to have been born a beggar, rather than have inherited his father's fortunes at the expense of inheriting his diseases!

A person labouring under any incurable malady ought not to marry. He thereby not only shortens his own life, but transmits misery to others; but when both parties are deeply tainted with disease, the effects must be still worse. If such have any issue, they must be miserable indeed. Want of attention to these things, in forming connexions for life, has rooted out more families than plague, famine, or the sword; and as long as these connexions are formed from mercenary views, the evil will be continued.*

In matrimonial contracts, it is amazing how little regard is had to the health and form of the object. Sportsmen know that the generous courser cannot be bred out of the foundered jade, nor the sagacious spaniel out of the snarling cur. This results from immutable laws. The man who marries a woman of a sickly constitution, and descended of unhealthy parents, whatever his views may be, cannot be said to act a prudent part. A diseased woman may prove fertile; should this be the case, the family must become an infirmary: what prospect of happiness the father of such a family has, we shall leave any one to judge.*

---

* The Lacedemonians condemned their king, Archidamus, for having married a weak, puny woman ; because, said they, instead of propagating a race of heroes, you will fill the throne with a progeny of changelings.

The predisposition to disease varies greatly in different individuals: scrofula or insanity, for instance, may be roused into activity in some by the most trivial causes,—while in others very powerful ones only will produce the same effect. On the other hand, the predisposition to gout is generally so strong, as to terminate in the disease almost in defiance of every precaution; hence, few of the male children of a gouty parent escape the complaint.

Another cause which may be productive of feeble children, is premature or immature marriages. It is well known, that when cattle breed too early, their young are so deteriorated as not to be worth rearing. The same deterioration will occur in the human race under similar circumstances.

Such children as have the misfortune to be born of diseased or feeble parents will require to be nursed with greater care than others. This is the only way to make amends for the defects of constitution; and it will often go a great length. A healthy nurse, wholesome air, and sufficient exercise, will do wonders. But when these are neglected, little is to be expected from any other means. The defects of constitution cannot be supplied by medicine.

It is considered as a general rule, that an individual, aware of the nature of his predisposition, may ward off the disease by avoiding the exciting cause.

Those who inherit any family disease ought to be very circumspect in their manner of living. They should consider well the nature of such disease, and guard against it by a proper regimen. It is certain, that family diseases have often, by proper care, been kept off for one generation; and there is reason to believe, that, by persisting in the same course, such diseases might at length be wholly eradicated. This is a subject very little regarded, though of the greatest importance. Family constitutions are as capable of improvement as family estates; and the libertine who impairs the one does greater injury to his posterity than the prodigal who squanders the other.

---

* The Jews, by their laws, were, in certain cases, forbidden to have any manner of commerce with the diseased; and, indeed, to this all wise legislators ought to have a special regard. In some countries diseased persons have actually been forbidden to marry, upon the principle that such marriages produce not only individual inferiority, but also political mischief; and, therefore, require public consideration.

OF THE CLOTHING OF CHILDREN.

The natural use of clothes to an infant, is to keep it warm. The clothing at this early period of life is a simple matter,—all that is required is, that it should be *warm*, *light*, and *loose:* warm enough to protect it from vicissitudes of temperature, light and loose that it should not by its weight or tightness compress any part, or impede the movement and growth of the body and limbs. It should be composed of such materials as are suitable to the season of the year and state of the weather, that it may preserve the natural warmth of the body; and it should be so formed as not in any way to cause uneasiness or constraint. In the winter season, or during cool weather, flannel is an essential article of dress. Mr. Hunter said, "Give children plenty of milk, plenty of sleep, and plenty of flannel." To the new-born infant, warmth is always congenial and conducive to its well doing. At this early period of life, from feebleness, the development of heat is very slow; it is therefore essentially necessary that the clothing should be of such a texture as favours the accumulation of warmth on the surface. Flannel is a bad conductor of heat, and thus even in warm climates it regulates the temperature of the surface better than linen. It should be worn next the skin, that by its stimulating effects the blood may be determined to the surface of the body, and thus counteract congestion on the internal organs. During summer, in older children, linen may be substituted for flannel. The clothing, as was before said. should be regulated according to the season of the year and state of the weather; but a cold and damp atmosphere and easterly winds which dry the surface are always particularly to be guarded against; attention to these circumstances will be preventive of ill health, which otherwise is likely to occur. The change from warm to lighter clothing should at all times be gradual: the skin should not be tried by sudden changes, any more than the stomach with the extremes of fasting and satiety.

The covering for the head cannot be too light: a night-cap may be worn for the purpose of cleanliness, but the hair is quite sufficient within the house. There is naturally a strong tendency of blood to the head during infancy, for the process of dentition, which is going forward, and hence a predisposition to be affected by inflammatory complaints; the head, therefore, should be kept cool to counteract this; but the hair need not be close cut nor the child shorn like a sheep. During the first five or six months of its age, the clothes should be made sufficiently long to extend considerably below the feet, in order that the lower extremities may be protected from cold and variations of temperature, but after this the limbs should be unencumbered so as to admit freedom of motion. In cold weather short stockings or woollen socks may be worn, which should be sufficiently wide to be easily put on, for nothing is more pernicious than to cramp the feet; and indeed tightness interferes with the circulation, and is not conducive to warmth. The shoes should be large, and easy to the feet, which are rapidly expanding, so that the shoes which will fit the child to-day, will be too tight a month hence. This applies also to elder children, where tight shoes are the too frequent cause of doubling of the toes, painful corns, turning in of the nails to the quick, and not unfrequently of head-ache and general derangement of the health.* Shoes for daily wear should not be too thin;

---

* It is doubtless owing to the compression of the blood-vessels of the feet, that more blood than usual flows to the head, and the disturbance of the system which so readily takes place evinces also the important sympathies which connect the feet with other organs, particularly with the head.—ROBERSON.

such shoes do not protect the feet in walking, and instead of encouraging a firm step, give rise to a timid, hobbling gait.

The absurd custom of rolling and bandaging infants is deservedly in this country laid aside. The actions of infants express that they ought to be kept easy and unconfined; they cannot tell their complaints, but they show signs of uneasiness by fretfulness or crying when they are hurt or in pain, and when liberated from their bracings they express themselves pleased and happy by their freedom of action and motions.

If we consider the body of an infant as a bundle of soft pipes replenished with fluid in continual motion, the danger of any undue pressure will appear in the strongest light. Nature, in order to make way for the growth of children, has formed their bodies soft and flexible; and lest they should receive injury from compression in the womb, has surrounded the fœtus with fluid. This shows the care which nature takes to defend them against everything which may in the least cramp or restrain their motions. The bones of infants are so pliable as to yield to the slightest pressure, and are easily made to assume a bad shape which can never afterwards be wholly remedied.

Any confinement which obstructs the circulation, and prevents the regular distribution of blood to different parts of the body, renders the growth unequal, one part enlarging too much, while another remains too small; and thus eventually the whole frame is disproportioned and misshapen. To this it must be added that when a child is cramped in its clothes, it naturally shrinks at the part that is hurt, and thus by putting its body into unnatural positions it becomes deformed from habit.

Deformity of body may proceed from weakness or disease, but generally it is the effect of improper clothing. Nine-tenths, at least, of such cases among mankind may be imputed to this cause. A deformed figure is not only disagreeable to the eye, but by displacement of the organs all the bodily functions must be interfered with, and of course health impaired: hence few remarkably ill-formed people are strong and healthy.

The new motions which commence at birth, as the circulation of the blood through the lungs, respiration, digestion, &c., afford another strong argument for keeping the body of the infant free from pressure. The organs for performing these functions not having been accustomed to move, are easily arrested, and when this happens death must ensue. Hardly any means could be devised more effectually to stop these motions than bracing the body too tight with bandages and rollers.*

In dressing infants the clothes should be fastened with strings or with needle and thread: pins should never be used when it is possible to avoid them. Children are frequently much injured by the points of pins being directed inwards in nursing them, or by their own natural movements Pins have been found sticking above half an inch into the body of a child, after it had died of convulsions which in all probability proceeded from that cause.

Infants should be kept as dry and clean as possible: they perspire more than adults, and if their clothes are not frequently changed they become very hurtful: wet diapers and stockings are apt to give rise to bowel complaints, and to cause painful irritations of the skin about the groins and nates. The under clothes should be frequently examined, and, if wet, should be removed, and dry and clean ones applied.

Cleanliness is not only pleasant to the senses, but tends greatly to preserve the health of children; it promotes perspiration, and by that means frees the body from superfluous humours, which if retained could not fail to cause disease. No mother or nurse can have any excuse for allowing a child to be dirty. Poverty may necessitate her dressing it in coarse clothes; but if she does not keep them clean it must be her own fault.

As to the fashion or shape of children's dress, these will always vary according to the custom of different countries and the humour of parents: the great rule to be observed is that a child should have sufficient clothes to keep it warm, and that they should be quite easy for its body.

---

* In many parts of Great Britain to this day, and generally on the Continent, a roller eight or ten feet in length is applied tightly round the infant's body directly after it is born.

Food for Children.

The mother's milk, or that of a healthy nurse, is unquestionably the best food for an infant. Neither art nor nature can afford a proper substitute for it. It should also be taken by the act of sucking. Infants may seem to thrive for a few months without the breast; but during teething and the occurrence of diseases incidental to childhood the greater number die. The almost universal custom of feeding infants with inappropriate articles of food very soon after they are born is, to say the least of it, highly reprehensible. The delicate and uninured digestive organs are thus often seriously injured by stuffing them with gruel or pap at this early period of existence. Nature herself appears to point out the impropriety of this practice by withholding the nourishment which she herself prepares, until some hours after birth. If it were essential that the infant should receive nourishment so soon after it is born, it seems highly improbable that the appropriate food should be so tardily furnished. We nowhere observe such an inconsistency in nature, or see a physical want established without the means being provided for satisfying it. The natural inference to be deduced from this is, that as a general rule this early feeding is not essential, and therefore not proper. It is true that the secretion of milk in the breasts is sometimes delayed for a longer time than it would appear prudent to withhold some little nourishment from the infant, in which case a teaspoonful or two of some light fluid, as milk and water or sugar and water, may be given from time to time: but over-distension of the stomach at this early period of existence is one of the most powerful and frequent causes of deranged digestion, flatulency, gripes, &c.

As a general rule it is better to let the infant go quietly to sleep, and when it awakes to apply it to the mother's breast, who by this time also will have been herself refreshed after the fatigue of labour: for although the mother's milk does not always come immediately, the early application of the infant is the way to bring it on; besides the first milk that flows from the breast acts as a purgative, and fulfils the purpose of cleansing the child's bowels better than any medicine that can be given. Drawing the breasts thus early also prevents over-distension of them and all its painful consequences, and other maladies incidental to the childbed state.

The first thing thought necessary to be given to the infant is physic, in order to cleanse the bowels of the dark greenish-brown substance called meconium, which is secreted by the intestines before birth, and which, if not immediately evacuated, was considered by nurses to exercise a baneful influence on its health: for this purpose butter and sugar mixed was crammed into the infant's stomach. It is much better to allow the infant to sleep for some hours; after which, if the bowels do not act, or the belly is distended, a tea-spoonful of castor oil is the most appropriate aperient that can be given.

Provided that the mother or nurse has enough milk, the child should have no other food till the fourth or fifth month, and after the first month it will be sufficiently often to apply the child to the breast once in every three or four hours during the day, and every six hours during the night. We are here presuming that both the mother and infant are in average health. By this mode of management the child will acquire regular habits, its stomach will not he deranged, and the mother's breasts will perform their function of secretion better. When the child has attained the age of four or five months it may have some light food once or twice a-day,—as two parts of milk mixed with one part of water, or oatmeal, groat, or barley gruel, or thin panada, pap, or weak broth. This will relieve the mother, will accustom the child by degrees to take food, and render the weaning less difficult and hazardous. All sudden transitions are to be avoided in nursing. For this reason the food of children ought to be simple and resemble the nourishment provided by nature as much as possible: milk should, therefore, make a principal part of their food, not only before they are weaned, but for some time after.

Next to milk, good light bread is to be recommended. Bread may be given to a child as soon as it shows an inclination to chew; and it may at all times be allowed as much plain bread as it will eat. The very act of chewing will promote the cutting of the teeth and the discharge of saliva;

while the bread mixing with the nurse's milk in the stomach will afford an excellent nourishment. Children discover an early inclination to chew whatever is put into their hands. Parents observe the inclination, but generally mistake the object. Instead of giving the child something which may at once exercise its gums and afford it nourishment, they commonly put into its hands a piece of hard metal, or impenetrable coral. A crust of bread is the best gumstick. It not only answers the purpose better than anything else, but has the additional properties of nourishing the child, and of carrying the saliva down into the stomach, which is too valuable a liquor to be lost.

Bread, besides being used dry, may be many ways prepared as food for children. One of the best methods is to boil it in water, afterwards pouring the water off, and mixing with the bread a proper quantity of new milk unboiled. Milk is both more wholesome and nourishing this way than boiled, and is less apt to occasion costiveness. For a child farther advanced, bread may be mixed in veal or chicken broth, made into puddings, or the like. Bread is a proper food for children at all times, provided it be plain, made of wholesome grain, and well fermented; but when enriched with fruits, sugars, or such things, it becomes very unwholesome.

It is soon enough to allow children animal food, when they have got teeth to eat it. They should never taste it till after they are weaned, and even then they ought to use it sparingly. Indeed, when children live wholly on vegetable food, it is apt to sour on their stomachs; but, on the other hand, too much flesh heats the body, and occasions fevers and other inflammatory diseases. This plainly points out a due mixture of animal and vegetable food as most proper for children.

Few things prove more hurtful to infants than the common method of sweetening their food. It induces them to take more than they ought to do, which makes them grow fat and bloated. It is pretty certain, if the food of children were quite plain, that they would never take more than enough. Their excesses are entirely owing to nurses. If a child be gorged with food at all hours, and enticed to take it, by making it sweet and agreeable to the palate, is it any wonder that such a child should in time be induced to crave more food than it ought to have?

Children may be hurt by too little as well as too much food. After a child is weaned, it ought to be fed four or five times a day, but should never be accustomed to eat in the night; neither should it have too much at a time. Children thrive best on moderate quantities of food given at regular intervals. This neither overloads the stomach nor hurts the digestion, and is certainly most agreeable to nature.

Writers on nursing have inveighed with such vehemence against giving children too much food, that many parents, by endeavouring to shun that error, have run into the opposite extreme, and ruined the constitutions of their children. The error of pinching children in their food is more hurtful than the other extreme. Nature has many ways of relieving herself when overcharged; whereas a child, who is pinched with hunger, will never become a strong or a healthy man. That errors are frequently committed on both sides, must be acknowledged; but where one child is hurt by the quantity of its food, ten suffer from the quality. This is the principal evil, and claims our strictest attention.

Many people imagine, that the food which they themselves like cannot be bad for their children: but this notion is very absurd. In the more advanced periods of life we often acquire an inclination for food which, when children, we could not endure. Besides, there are many things that by habit may agree very well with the stomach of a grown person, which would be hurtful to a child: as high-seasoned, salted, and smoke-dried provisions, &c. It would also be improper to feed children with fat meat, strong broths, rich soups, or the like.

All strong liquors are hurtful to children. Some parents teach their children to drink ale, and other fermented liquors, at every meal. Such a practice cannot fail to do mischief. These children seldom escape the violence of the measles, hooping-cough, or some inflammatory disorder. Milk, water, butter-milk, or whey, are the most proper for children to drink. If they have anything stronger, it may be light table-beer, or a little wine mixed with water. The stomachs of children can digest well enough, without the assistance of stimulating drinks.

Few things are more hurtful to children than unripe fruit: it enfeebles the powers of digestion, causes acidity, and relaxes the stomach, by which means it becomes a nest for worms. Children, indeed, show a great inclination for fruit; and if good ripe fruit were allowed them in proper quantity it would have no bad effects. We never find a natural inclination wrong if properly regulated. Fruits are generally of a cooling nature, and somewhat aperient. Care should be taken that they are not eaten to excess, which is best guarded against by allowing a proper quantity of fruit that is good and ripe.*

Roots which contain a crude viscid juice should be sparingly given to children, as they tend to produce eruptive diseases: this caution is peculiarly necessary for the poor. Glad to obtain, at a small price, what will satisfy the hunger of their children, they stuff them two or three times a-day with crude vegetables. Children had better eat a smaller quantity of such food as yields a wholesome nourishment, than be crammed with what their digestive powers are unable properly to assimilate.

Butter ought likewise to be sparingly given to children. It both relaxes the stomach, and produces gross humours. Indeed, most things that are fat or oily have this effect. Butter when salted becomes still more hurtful. Instead of butter, so liberally given to children in most parts of this country, we would recommend honey. Children who eat honey are seldom troubled with worms; they are also less subject to cutaneous diseases.

Many people err in thinking that the diet of children ought to be altogether moist. When children live entirely upon slops, it relaxes their solids, renders them weak, and disposes them to the rickets, the scrofula, and other glandular disorders. Relaxation is one of the most general causes of the diseases of children. Everything, therefore, which tends to unbrace their solids ought to be carefully avoided.

---

* Children are always sickly in the fruit season, which may be thus accounted for:—Two-thirds of the fruit which comes to market in this country is really unripe; and children, not being in a condition to judge for themselves, eat whatever they can lay their hands upon, which often proves little better than a poison to their tender bowels. Servants, and others who have the care of children, should be strictly forbidden to give them any fruit without the knowledge of their parents.

We would not be understood by these observations as confining children to any particular kind of food. Their diet may be frequently varied, provided always that sufficient regard be had to simplicity.

EXERCISE.

Of all the causes which conspire to render the life of man short and miserable, none has greater influence than the want of proper EXERCISE: healthy parents, wholesome food, and proper clothing, will avail little, where exercise is neglected. Sufficient exercise will make up for several defects in nursing; but nothing can supply the want of it. It is absolutely necessary to the health, the growth, and the strength of children.

The desire of exercise is coëval with life itself. Were this principle attended to, many diseases might be prevented. But, while indolence and sedentary employments prevent two-thirds of mankind from either taking sufficient exercise themselves, or giving it to their children, what have we to expect but diseases and deformity among their offspring? Dr. Buchan tells us that the rickets, so destructive to children, never appeared in this country till manufactures began to flourish, and people left the country to follow sedentary employments in great towns. It is amongst these people that this disease chiefly prevails, and not only deforms, but kills many of their offspring.

The conduct of other young animals shows the propriety of giving exercise to children. Every other animal makes use of its organs of motion as soon as it can, and many of them, even when under no necessity of moving in quest of food, cannot be restrained without force. This is evidently the case with the calf, the lamb, and most other young animals. If these creatures were not permitted to frisk about and take exercise, they would soon die or become diseased. The same inclination appears very early in the young of the human species; but as they are not able to take exercise themselves, it is the business of their parents and nurses to assist them.

Children almost from birth require exercise, although, indeed, their own restless dispositions alone excite them to take it. For infants, it will be sufficient to lay them upon a rug and let them kick about at pleasure frequently during the day; and for this reason, all modes of dress which confine them should be avoided; the body should also be well rubbed at each period of dressing, at which time also, when the temperature of the weather permits, they may be laid down naked on a blanket and be encouraged by their nurse to exercise their limbs. They should be occasionally dandled in the arms; care being taken that they are not put in a constrained position, or above all, held in an upright posture. This affords the nurse an opportunity of engaging their attention and talking to them, and is much safer than swinging in a machine. When the infant is carried about, the nurse should change the arm on which it rests, at intervals. Where this is not attended to, the child is apt to lean on one side—a habit which it is always difficult to correct; and as it grows older, it usually passes one of its arms round the neck of its nurse to support it in its position, and of course always the same arm when the side on which it is carried is not changed by the nurse; the consequence of which is, that the shoulder-blade and side of the chest are liable to be forced out of their natural position, which may ultimately produce permanent distortion of those parts. The mode of carrying an infant is of much greater moment than it is generally thought to be, and should be carefully attended to by the nurse, and the position be frequently changed. Nothing can be more injudicious and unsafe than to set one child to nurse another: this has often proved fatal to many infants.

All rapid, whirling, and jerking motions are calculated to injure the health and delicate organization of infants, and should be strictly prohibited. The practice of setting very young infants upright on the knee, and jolting them violently, is very censurable; indeed, all violent shocks and agitations are prejudicial, and should be avoided: on the other hand, gentle and cautious tossing, with the child in an inclined position on the arms, is generally most pleasing to it, affords an agreeable exercise to the body, and may be salutary by the moderate agitation which it produces in the internal organs.

Children who are exercised in this way, and are permitted to use their limbs freely by lying and kicking about on the floor, learn to walk earlier and more steadily than those to whom this freedom of voluntary action is not allowed. When they have acquired sufficient strength to sit up, their toys may be placed around them, and they should be encouraged to *crawl* after them; by these means they exert and strengthen their muscular powers, and make a natural preliminary effort to the more difficult exercise of walking.

Children who have exercised their muscles by crawling, acquire a firmer footing, and more strength in their gait, than those who are taught to walk without this intermediate discipline. They may now be led by both hands of the nurse, or supported under the arms by the same means, but never led by one hand alone. Leading-strings and go-carts, formerly much used, are deservedly laid aside: these things, by making children press the body forward, and bear with their whole weight on their chest and stomach, cause the breast to become flattened and their breathing interfered with; and not unfrequently, the bowels also being compressed, the digestion was interrupted. If left to themselves, aided in the manner above mentioned, or if raised against a chair, they will gradually by their own efforts acquire the power of getting from one chair to another, and at length stand without support. As soon as a child has obtained the entire use of its legs, walking is the best exercise it can take, and it may be suffered to run about and gambol in the open air under the superintendence of a careful nurse.

It is a common notion, that if children are set upon their feet early, their legs will become crooked. Where the power of walking is acquired gradually, and in great measure by their own voluntary efforts, there is reason to believe the very reverse of this is true. Every member gains strength in proportion as it is exercised. The limbs of children are weak, indeed, but their bodies are proportionably light. We never hear of animals becoming crooked by using their legs too soon. If a child is not permitted to make use of its legs till a considerable time after its birth, and is then placed upon them with its whole weight at once, there may be some danger; but this proceeds entirely from the child not having been accustomed to exercise its limbs from the beginning.

Whoever considers the structure of the human body will soon be convinced of the necessity of exercise for the health of children. The body is composed of an infinite number of tubes, whose fluids cannot be pushed on without the action and pressure of the muscles. But if the fluids remain inactive, obstructions must happen, which cannot fail to occasion diseases. Nature has furnished both the vessels which carry the blood and lymph with numerous valves, in order that the action of every muscle might push forward their contents: but without action, this admirable contrivance can have no effect. This part of the animal economy proves to a demonstration the necessity of exercise for the preservation of health.

Arguments to show the importance of exercise might be drawn from every part of the animal economy; without exercise, the circulation of the blood cannot be properly carried on, nor the different secretions duly performed; without exercise, the fluids cannot be properly prepared, nor the solids rendered strong or firm. The action of the heart, the motion of the lungs, and all the vital functions, are greatly assisted by exercise. How those effects are produced has been shown in the Physiological part, at least so far as those for whom this treatise is intended would be able to follow. It will be sufficient here to add, that when exercise is neglected, none of the animal functions can be duly performed; and when this is the case, the whole constitution must go to wreck.

A good constitution ought certainly to be our first object in the management of children. It lays a foundation for their being useful and happy in life; and whoever neglects it, not only fails in his duty to his offspring, but to society.

Mothers of the poorer sort think that they are great gainers by making their children lie or sit while they themselves work. In this they are much mistaken. By neglecting to give their children exercise, they become puny and sickly, and they are obliged to keep them a longer time before they can do anything for themselves. Taking care of their children is the most useful business in which poor women can be employed; but, alas! it is not always in their power. Poverty often obliges them to neglect their offspring, in order to procure the necessaries of life. Ten thousand times more benefit would accrue to the State by enabling the poor to bring up their own children, than from all the hospitals that can ever be erected for that purpose.*

It is a very common error in parents to send their children to school too young. The confinement and constrained positions which this necessarily obliges them to observe at so early an age, is prejudicial to their health; and all the good that can be expected to result from it, is the acquiring of regular habits,—a most beneficial result in its way, but not to be purchased at so great a sacrifice of health and vigour. An infant school may be very suitable for the children of the poor when the parents are engaged in daily labour and cannot attend to their requirements; but this is only changing a greater for a lesser evil, or taking a step in a better way than keeping them sitting all day in the corner of a room, or entrusting them to young girls who are unable to take care of them.

The confinement of children in large schools is extremely hurtful; crowded together, their numbers contaminate the atmosphere and render it unfit for breathing; and if any one of them happens to be ill, it favours the propagation of the disease among the others.

With regard to mental cultivation, it may be observed that too early application enfeebles the mind. Schooling, properly so called, should not be commenced till the seventh year is fully attained: till then, the social circle of brothers and sisters, and the superintending care of an intelligent mother, are much more advantageous for the development both of the bodily and mental health of the child. Woman is the mother of the moral man, as well as the author of his existence, and she is best enabled to call forth or elicit the moral light, the germ of which every child brings into the world, and to impress it with sentiments which, if fostered in early life, will never be eradicated. The great influence which the mother possesses in modifying and forming the character of the child, has long been observed; and its future destiny is said to be her work.

---

* If it were made the interest of the poor to keep their children alive, we should lose very few of them. A small premium given annually to each poor family, for every child they have alive at the year's end, would save more infant lives than if the whole revenue of the crown were expended on hospitals for this purpose. This would make the poor esteem fertility a blessing; whereas many of them think it the greatest curse that can befall them; and in place of wishing their children to live, so far does poverty get the better of natural affection, that they are often very happy when they die.

When children are of an appropriate age for school, girls as well as boys should have a sufficient portion of active bodily exercise, as skipping, jumping, and various games; indeed, until the age of ten or twelve years their exercises may be similar. Gymnastic or calisthenic exercises and dancing are highly commendable. These require due regulation, so that from emulation they are not carried to excess: but, beneficial as they are, they should not supersede the daily run and gambols in the green fields, where they can be obtained, and which are the most healthful and invigorating of exercises.

We may here very properly inveigh against the abominable custom that exists at some (more particularly girls') schools, of allowing or obliging them to learn lessons while walking. Nothing can be more in opposition to the beneficial effects to be obtained by exercise, which should recreate the mind as well as the body; but by this pernicious custom the attention of the mind is called to the book, and the limbs are constrained in their movements, and thus both objects are defeated.

It is unnecessary here to insist upon the dangerous consequences of obliging girls to sit too much. The bad effects of this practice are too often felt at a certain time of life. But supposing this critical period to be got over, greater dangers still await them when they come to be mothers. Women who have been early accustomed to a sedentary life, generally run great hazard in child-bed; while those who have been used to romp about, and take sufficient exercise, are seldom in any danger.

One hardly meets with a girl who can at the same time boast of early performances with the needle, and a good constitution. Close and early confinement generally occasions indigestion, head-aches, pale complexions, pain of the stomach, loss of appetite, coughs, consumptions of the lungs, and deformity of body. The last of these, indeed, is not to be wondered at, considering the awkward postures in which girls sit at many kinds of needlework, and the delicate flexible state of their bodies in the early periods of life.

To counteract the disadvantages resulting from this close application to work, and to prevent deformity and give a fine shape to their daughters, anxious and ill-judging mothers have recourse to tight-laced stays, and other equally bad means of support. The materials of which these are usually formed, are strengthened by whalebone or steel, and therefore yield little to the natural action of the parts to which they are designed to give support. The motion of the intermediate portions of the spine must by this means be greatly circumscribed, the action of the muscles attached to the trunk impeded, the necessary determination and circulation of blood through their substance lessened, and of necessity their size and power diminished: thus they defeat the object in view, and increase or perpetuate the deformity they are intended to remedy. Pressure made on the chest by the busk must also impede the free action of the muscles of respiration, and cause distortion of the breast-bone.

Would mothers, instead of having their daughters instructed in many trifling accomplishments, employ them in plain work and housewifery, and allow them sufficient exercise in the open air, they would both make them more healthy mothers, and more useful members of society. Accomplishments are very desirable, but they should be considered as secondary, and always disregarded when they impair health.

Many people imagine it a great advantage for children to be early taught to earn their bread. This opinion is certainly right, provided they are so employed as not to hurt their health or growth; but, when these suffer, society, instead of being benefited, is a real loser by their labour. There are few employments, except sedentary ones, by which children can earn a livelihood; and if they be set to these too soon, it ruins their constitutions.

In order to be satisfied of the truth of this observation, we need only look into the great manufacturing towns, where we shall find a puny degenerate race of people, weak and sickly all their lives, seldom exceeding the middle period of life; or if they do, being unfit for business, they become a burden to society. Thus arts and manufactures, though they may increase the riches of a country, are by no means favourable to the health of its inhabitants. Good policy would therefore require, that such people as labour during life should not be set too early to work. Every person conversant in the breed of horses, or other working animals, knows, that if they be put to hard labour too soon, they will never turn out to advantage. This is equally true with respect to the human species.

There are, nevertheless, various ways of employing young people, without hurting their health. The easier parts of gardening, husbandry, or any business carried on without doors, are most proper. These are employments which most young people are fond of, and some parts of them may be always adapted to their age, taste, and strength.

Such parents, however, as are under the necessity of employing their children within doors, ought to allow them sufficient time for active diversions without. This would both encourage them to do more work, and prevent their constitutions from being hurt.

Some imagine that exercise within doors is sufficient; but they are generally mistaken. One hour spent in running, or any other exercise without doors, is worth ten within. When children cannot go abroad, they may indeed be exercised at home. The best method of doing this, is to make them run about in a large room, or dance. This last kind of exercise, if not carried to excess, is of excellent service to young people. It cheers the spirits, promotes perspiration, strengthens the limbs, &c. An eminent physician used to say, that he made his children dance, instead of giving them physic. It would be well if more people followed his example.

The cold bath may be considered an auxiliary to exercise. By it, the body is braced and strengthened, the circulation and secretions promoted, and when used with due caution and prudence, many diseases, as rickets and scrofula, prevented. The ancients, who took every means to render their children hardy and robust, were no strangers to the use of the cold bath: and the practice of immersing children daily in cold water, appears to have been very common among our ancestors. The cold bath should not be used when the stomach is full, or the body hot; and for young children, one immersion at a time is enough: the skin should be well dried, and to carry out its good effects friction with flannel or the hand should be continued for some time. This kind of passive exercise is of great advantage, and should be persisted in until there is a glow on the surface. Where the child is feeble the water may be slightly tepid, and a pound of salt added to each gallon of water. Where immersion is not attainable, the surface may be well sponged with water, or salt and water, and then well rubbed: in cold weather, the rubbing should be done under a flannel dressing-gown.

Air.

Living in a pure atmosphere of moderate temperature is the best preservative of health in early life; few things being more destructive to children than confined or unwholesome air. This is one reason why so few children born in workhouses live. These places are generally crowded with old, sickly, and infirm people; by which means the air is rendered so impure, that it becomes very fatal to infants. Mortality in early life always bears a direct proportion to the impurity of the atmosphere: hence the proportionate number of deaths is greater in large towns than in the country, and among a manufacturing than a rural population.

In large populous towns, the poorer sort of inhabitants live in low, dirty, confined houses, to which the fresh air has scarcely any access. Though grown people, who are hardy and robust, may live in such situations, yet they generally prove fatal to their offspring, few of whom arrive at maturity, and many of those who do are weak and deformed. As such people are not in a condition to carry their children abroad into the open air, we must lay our account with losing the greater part of them. But the rich have not this excuse. It is their business to see that their children be daily carried abroad, and that they be kept in the open air for a sufficient time. This practice will always succeed better if the mother goes along with them. Servants are often negligent in these matters, and allow a child to sit or lie on the damp ground, instead of leading or carrying it about. The mother surely needs air as well as her children; and how can she be better employed than in attending them?

Many parents, under a mistaken idea of rendering their children hardy, expose them ill-clad to all the severities of the weather, and thus you see them daily going about in mid-winter with their legs bare and purple from cold, and their little hands disfigured with chaps and chilblains. No plan can be more erroneous, or better calculated to frustrate the intent with which it is adopted; and instead of rendering their children robust, they subject them to colds and coughs, and not unfrequently call into activity disorders which might otherwise have remained dormant—such as scrofula, and mesenteric affections. Observation has proved that those children who are least exposed during winter are the most healthy. It is not intended by this to advocate the confinement of children to the house; on the contrary, when they are well clad, and are able to take exercise, and the weather will permit, the more they are out the better. Pure fresh air combined with exercise is extremely beneficial; but in severely cold weather, particularly if the atmosphere be impregnated with moisture, children are better kept in the house.

The nursery should have as cheerful an aspect as the situation will admit of, and ought always to be a large well-ventilated room, having a fire-place which should never be closed in the summer or winter: where there are several children, it should have a ventilator in the door also. These means will always ensure a current of fresh air. The room should not be kept too hot, for although it is necessary to guard against cold, extreme heat is very pernicious; it relaxes the muscular fibre, enfeebles the frame, and renders children very delicate and like hot-house plants. It is of advantage that children should sleep in a different room from the day nursery. The beds should be without curtains, and should not be crowded together; neither should the children be overwhelmed with bed-clothes. The practice of wrapping infants up too closely in cradles is very bad. One would think that nurses were afraid lest children should suffer by breathing free air, as many of them actually cover the child's face while asleep, and others wrap a covering over the whole cradle, by which means the child is forced to breathe the same air over and over again all the time it sleeps. Cradles, indeed, are on many accounts hurtful to children, and it would be better if the use of them were totally laid aside.

A child is generally laid to sleep in the day with all its clothes on; and if a number of others are heaped above them it must be over-heated: by which means it cannot fail to catch cold on being taken out of the cradle, and exposed to the open air with only its usual clothing, which is too frequently the case.

We may sum up the observations on air, by saying that pure brisk, not cold air, is, if possible, of more importance than food. Attention should be paid also to its temperature and humidity as well as to its purity and renewal.

Children brought up in the country who have been accustomed to open air, should not be sent too early to large towns, where the air is more confined and less pure; this is frequently done with a view to forward their education, but it proves very hurtful to their health. All schools and seminaries of learning ought, if possible, to be so situated as to have fresh, dry, pure air, and should never be too much crowded.

WET-NURSES.

Common sense will direct every one to choose a woman who is healthy and who has plenty of milk. Impositions practised in this respect are very great; and a nurse who has not a drop of milk will frequently take charge of an infant. A woman of moderate age, with her second child, is to be preferred, as more reliance can then be placed on her capability of continuing to suckle as long as may be required. If she be at the same time cleanly, careful, and good-tempered, she can hardly fail to make a proper nurse: the great proof, however, is her having a healthy child *of her own* at the breast, as now and then a child is borrowed for the occasion.

We may lay it down as a general rule, that every woman who nurses for hire should be carefully looked after; otherwise she will not do her duty. For this reason, parents should always have their children nursed under their own eyes, if possible; and where this cannot be done, they should be extremely circumspect in the choice of those persons to whom they intrust them. It is not to be expected that any woman who abandons her own child to suckle that of another person, for the sake of gain, should feel all the affection of a parent for her nursling.

One of the most common faults of wet-nurses is, dosing infants with such things as lull them to sleep. An indolent nurse who does not give a child sufficient exercise in the open air to make it sleep, and does not choose to be disturbed at night, will seldom fail to procure for it some opiate, as syrup of poppies or Godfrey's cordial, or, what answers the same purpose, some spirituous liquors. These, although poisonous to infants, are too frequently administered by many who bear the character of very good nurses. Nurses who are fond of medicine are always to be suspected; they trust to it, and neglect their duty, and imagine that medicine will make up for all deficiencies of food, air, exercise, and cleanliness. Where a parent finds her child always asleep, it is advisable that she should remove her child or change her nurse without delay.

Children are often hurt by nurses suffering them to cry long and vehemently; this strains their tender bodies, and frequently occasions ruptures and inflammation of the throat. A child never continues to cry long without a cause, which may mostly be discovered by proper attention. It is, nevertheless, a mistake to be needlessly alarmed every time a child cries. Crying is to a considerable extent a provision of nature, and is excited by every new sensation of any force. It is only when often repeated, long continued, and evidently caused by suffering, that it is prejudicial. It is a great mistake to treat crying as an invariable sign of want of food, and to attempt to solace it with the breast:

to say the least of it, it engenders bad habits. Nature often endeavours to free the bodies of children from bad humours or some internal irritation by eruptions on the skin; by which means fevers and other diseases are prevented. Nurses are apt to mistake such critical eruptions for the itch, or some other infectious disorder. Accordingly they take every method to drive them in. In this way many children lose their lives; and no wonder, as Nature is opposed in the very method she takes to relieve them. It ought to be a rule, which every nurse should observe, never to stop any eruption without proper advice, or being well assured that it is not of a critical nature. At any rate, it is never to be done without previous evacuations.

Loose stools is another method by which Nature often prevents or carries off the diseases of infants. If these proceed too far, no doubt they ought to be checked; but this is never to be done without the greatest caution. Nurses, upon the first appearance of loose stools, frequently fly to the use of astringents, or such things as confine the bowels. Hence inflammatory fevers, and other fatal diseases, are occasioned. A dose of rhubarb, a gentle vomit, or some other evacuation, should always precede the use of astringent medicines.

One of the greatest faults of nurses is, concealing the diseases of children from their parents. This they are extremely ready to do, especially when the disease is the effect of their own negligence. Many instances might be given of persons who have been rendered lame for life by a fall from their nurse's arms, which she, through fear, concealed till the misfortune was past cure. Every parent who intrusts a child to the care of a nurse, ought to give her the strictest charge not to conceal the most trifling disorder or misfortune that may befall it.

Few things tend more to the destruction of children than drenching them with drugs. There is no doubt that medicine is sometimes requisite for them; but the indiscriminate administration of medicine upon every little deviation from health, when some variation of diet or regimen would have answered every purpose, is a most pernicious habit. A child can encounter few greater evils than that of being subjected to the vigorous discipline of a medicine-giving mother or nurse, by whom it is drugged into a state of delicacy; and many a child, the cause of whose death is not suspected, has thus passed prematurely into the grave. If the rules above laid down, as to food, clothing, cleanliness, pure air, exercise, and the use of the bath, and so judiciously recommended by Clarke, Bull, Combe, Davies, and others, and more recently so strongly pointed out by Tilt, be acted on, very little medicine indeed for children will be needful.

No person ought to imagine these things unworthy of his attention. On the proper management of children depend not only their health and usefulness in life, but likewise the safety and prosperity of the state to which they belong. Effeminacy will prove the ruin of any state where it prevails; and, when its foundations are laid in infancy, it can never afterwards be wholly eradicated. Parents who love their offspring, and wish well to their country, ought, therefore, in the management of their children, to avoid every thing that may have a tendency to make them weak or effeminate, and to take every method in their power to render their constitutions strong and hardy.

DISEASES ARRANGED ALPHABETICALLY.

Abscess.

A collection of matter in a cyst, produced by inflammation.

An abscess may be formed in any of the tissues of the body, and the process of its formation may be thus described. First, there is inflammation of the adhesive kind in the cellular tissue or membrane, by which the different cells of the membrane become filled with adhesive matter, or coagulable lymph: a slight ulcerative process ensues, (inflammation still going on,) causing the formation of a small cavity in which matter (pus) is effused: the pressure of the matter on the sides of the cavity further promotes the ulcerative process; thus enlarging the cavity previously formed, and producing absorption of the neighbouring parts; the adhesive matter or lymph first thrown out constituting a boundary round the cyst. In the formation of abscess the pus does not produce absorption of all the parts equally, but excavates chiefly on the side towards the skin, and but little in the opposite direction. The purulent matter within the cyst may be either of a healthy or unhealthy character: in the first case it is of a cream-like consistence and of a yellowish-white colour, having a faint, sickly odour; in the second case it resembles whey with lumps of curd floating in it, and is sometimes bloody and fœtid. When inflammation of any part of the body terminates in the formation of abscess, there is a remission of the acute pain, succeeded by a dull, throbbing pain, and mostly accompanied by chills or rigors, the swelling becoming gradually elevated above the surrounding surface, and imparting to the touch a soft or fluctuating feel, the more prominent part changing from deep red or purple to a pale yellowish colour. This may occupy a greater or lesser length of time, as the abscess is deep-seated or otherwise. As the matter approaches the surface the skin gradually becomes thinner and thinner, and at length, if the process is suffered to go on without interruption, gives way and bursts, and the matter (pus) escapes. This is the usual course of what is called a healthy abscess.

Abscesses may be either acute or chronic. The common period or duration of an acute abscess is three weeks from its formation to the discharge of the matter. A chronic abscess is much slower in its progress, which may continue for several months, depending on a variety of circumstances connected with its situation and the state of constitution or general health of the individual.

Acute abscess is generally accompanied with some degree of inflammatory fever: when this is the case, and when at the same time the pain and irritation are great, the patient will be benefited by some saline aperient, and calmative medicine should be given as in the form No. 27: the opium with the saline tends to tranquillise the system, and the Epsom salt keeps the contents of the bowels in a soluble state. The affected part should be fomented and poulticed by applying flannels wrung out of hot water, or hot decoction of poppies, previous to the application of each poultice; the poultice being made of bread and linseed meal (see *Poultice*,) and renewed every six or eight hours. The warmth and moisture produced by this treatment expedites the suppurative and ulcerative process. Provided the abscess seems to go on regularly, it is better under common circumstances to leave it undisturbed by further means till it breaks.

When an acute abscess is situated under a thick expansion of skin, or ligamentous covering, or other unyielding surface, it is advisable that it should be opened as soon as fluctuation is distinctly felt, in order to prevent the purulent matter from burrowing under and among the surrounding parts. If the abscess discharges freely, it is better not to squeeze it. The poultice may be continued for some days, and afterwards the water dressing should be used; the part being supported by a bandage, or strips of adhesive or soap plaster, to favour the contraction of the cyst the aperture being left free and uncovered, so that any further discharge may escape. An abscess may be situated, internally, and then it does not usually make its way to the external surface, but commonly bursts into the readiest outlet, or rather into parts having an external outlet. Thus, abscesses situated in the abdominal cavity generally discharge themselves into the intestine, and those in the chest into the lungs: now and then those situated in the abdominal cavity make their way out at the navel.

Chronic abscess requires a different mode of treatment. It is more serious, from its being indicative of a feeble and unhealthy state of the system, which requires support; and we must uphold it by a generous diet, and endeavour to give it additional power by the administration of tonic and cordial medicine, such as bark, ammonia, &c. Stimulating applications should be made to the abscess in the shape of poultices made of salt and water, and bread, or yeast and oatmeal, or warm vinegar and oatmeal; or in very indolent cases stimulant plasters of galbanum, gum ammoniac, with mercury or Burgundy pitch. These keep up warmth and a degree of perspiration on the part.

Chronic abscess should be opened as soon as fluctuation is felt, and before the skin is discoloured: this requires the hand of a practised and able surgeon. Sir Astley Cooper says no part of surgery has been so bad as the manner in which wounds from abscess in the neck have been treated. He recommends that an abscess of this kind so situated should be opened with a sharp knife, the matter *being well pressed out* so as to excite adhesive inflammation, and the wound dressed with bread poultices moistened with solution of sulphate of zinc and afterwards spirits of wine: good light nourishment should be given, and the bowels carefully regulated.

After the discharge of matter from chronic abscesses, constitutional irritation, and hectic fever with copious night perspirations, not unfrequently arise; the degree of hectic fever not always being in proportion to the size of the abscess. Preparations of iron, the mineral acids, with bark, cod-liver oil, and change of air, are the most appropriate means for the relief of this constitutional disturbance.

AGUE, OR INTERMITTENT FEVER.

This variety of fever is characterised by paroxysms or fits, occurring at distinct intervals, there being a complete intermission of all symptoms of fever between the fits: hence its name, intermittent fever. Each paroxysm consists of three distinct stages, which follow one another with extreme regularity:—1st, the cold stage; 2ndly, the hot stage; 3rdly, the sweating stage, which terminates the fit.

The varieties are distinguished as—*Quotidian*, where a paroxysm takes place every day, or once in twenty-four hours; *Tertian*, where it recurs every other day, with an interval of forty-eight hours; *Quartan*, where it recurs every third day, with an interval of seventy-two hours.

There are other varieties mentioned by authors; but, as they resemble each other both in the train of symptoms and indications of cure, and arise from the same causes, a further account of them will tend to no practical benefit. The period that elapses between the end of one paroxysm and the beginning of another, is called the intermission; while the period that intervenes between the commencement of one paroxysm and that of the following one, is named an interval.

Symptoms.—The Cold stage is mostly preceded by a degree of languor or listlessness, sighing, pain or oppression at the pit of the stomach, shrinking of the features and of the surface generally (clothes that fitted closely becoming loose), roughness of the skin, chilliness succeeded by violent shivering, chattering of the teeth, trembling of the whole body, pain of the head, back, and loins, and blueness of the lips and nails; the breathing being quick and anxious, the pulse mostly feeble, the tongue dry and white, the secretions diminished, and the urine scanty and pale. This state lasts for a certain time, and is followed by

The Hot stage.—During this stage the heat of the body gradually returns, at first irregularly and by flushes of heat and cold alternately; the coldness then ceases entirely, and is succeeded by a dry burning heat; the face becomes flushed and red, the surface generally dry and hot; there is a throbbing of the temples and intense head-ache; the sensations become preternaturally acute, the pulse full, rapid, and hard; there is great thirst, the breathing is still oppressed, and the urine still scanty, but high coloured;—when at length another change takes place.

The Sweating stage commences by a general moisture breaking out, at first about the face and neck, followed by a copious and universal sweat, to the great relief of all the previous distress; the pulse returns to its natural standard, the tongue becomes moist, and the thirst ceases; the urine is plentiful, but turbid; and after a short time the patient appears to have resumed his wonted health.

Occasionally the paroxysms are accompanied by other and more violent symptoms; as convulsions, fainting fits, delirium, cramps, and painful spasmodic affections.

The quotidian usually comes on in the morning; the tertian at noon; and the quartan in the afternoon. The average duration of the paroxysm in the quotidian is twelve hours, and that of the intermission mostly the same. The paroxysm of the tertian lasts about eight hours; that of the quartan about six hours. The quotidian has the shortest, the quartan the longest cold stage. The tertian is the most usual, the quartan the least usual, of the three forms.

When the disease is retiring, the paroxysms recur at longer intervals, until they cease altogether.

When the ague occurs in the autumn, it has been termed *autumnal;* when in the spring, *vernal.* The autumnal agues are considered the most severe. The quotidian are the most common in the spring, the quartan in the autumn, the tertian occurring as often in one season as in the other. A residence in an aguish district will sometimes impart an intermittent character to other diseases; indeed, other diseases, when of long duration, will frequently assume a periodic character without exposure to the marsh effluvia, the presumed cause of ague. Individuals of all ages may be affected by ague; even infants in the womb are stated on very good authority to be liable to it, as they are also to small-pox, and many other diseases. It is chiefly persons of the middle age who are the subjects of ague, and men more than women,—probably because individuals of that age and sex are most exposed to the exciting cause; but the aged of either sex possess no immunity from it.

Causes.—Debility, resulting from whatever circumstance, predisposes to ague, and those who have before suffered from it are particularly susceptible to its recurrence from a very slight cause.

The principal exciting cause, without which it is presumed ague would never occur, is marsh miasma, or malaria, the effluvia arising from certain soils that have been flooded and partially dried, but not necessarily accompanied by decomposition of vegetable or animal matter.

For the production of this deleterious agent a certain elevation of temperature above 60° appears necessary. It does not show itself in the colder regions higher than 56° of north latitude; but the nearer we approach the equator, the more virulent the poison becomes. In the hotter climates it causes remittent fever, which in the temperate become intermittent. The time which elapses between the exposure to the miasmata and the occurrence of fever is variable: the attack will sometimes not occur for months, and then will be brought on by wet or cold easterly winds.*

Marsh miasma is more prejudicial during the night than in the day: hence to sleep at night in the open air in aguish countries is almost to ensure an attack. It is more virulent near the surface of the ground, or in the lower parts of a house than in the upper. It is wafted by the winds; accordingly high winds are also of service in clearing places of it. It loses its noxious properties by passing over a stream of water. It adheres to the foliage of lofty trees; trees, therefore, intervening in its course are a defence. Its generation is prevented by cultivation and draining, and its continued presence by an increase of population, as this necessitates an increase of fires, for the purposes of cooking, which it is presumed tend to dissipate the poison. In marshy districts, as the fens of Lincolnshire, after the lands were drained ague disappeared.

Dr. Snow, however, contends that agues are not communicated through the medium of the atmosphere, but from drinking marshy and stagnant water; and that the cause, whatever it may be, is not inhaled with the air, but enters the system by the alimentary canal, and not by the lungs.*

---

* Encyclopædia of Practical Medicine; and Watson's Lectures.

The effect of ague is to cause a distension of the liver, called *gall-cake*, and more particularly of the spleen, called *ague-cake*. During the cold stage, the blood seems to be largely accumulated in the veins of the viscera generally, so that we find the functions of the alimentary canal and liver disturbed early in the disease; and wherever the blood-vessels of the abdominal viscera are much engorged or over-distended with blood, as must be the case during the cold stage of an intermittent, the spleen becomes enlarged and indurated, sometimes to an extraordinary degree.

In marshy countries and fenny districts, the races of inhabitants become deteriorated and prematurely old.†

A notion formerly prevailed of the beneficial effects of ague for the cure of epilepsy. Dr. Watson relates that the late Dr. John Sims, who was a physician of some note in London, felt convinced, at the commencement of the illness which terminated his life, that he should recover if he could catch an ague; and he went down into one of the marshy districts expressly for that purpose, but returned home complaining that the country had been spoiled by draining, and that there were no agues to catch.

In temperate climates the result of ague is for the most part favourable, if the fits are of short duration and regular in their recurrence, with the intermissions clear and distinct, and of the quotidian and tertian variety. It is less favourable in its issue when the disease is of long standing, and when the paroxysms are irregular, of considerable duration, and anticipate their usual time of their return; also when it is accompanied by extreme prostration of strength, or complicated with other diseases, and of the quartan type. In warm climates ague is more dangerous, and sometimes rapidly fatal.

Intermittent fevers, under a well-regulated regimen, will often subside without medicine; and when the disease is mild, in an open, dry country, there is seldom any danger from allowing it to take its course; but when the patient's strength is much affected, and the paroxysms are severe and well marked, medicine ought immediately to be had recourse to.

---

* Dr. Snow on Continuous Molecular Changes.

† Encyclopædia of Practical Medicine; art. Marsh Miasma.

Treatment.—During the paroxysm, our object must be to shorten its progress, alleviate the symptoms, and avert the danger which may arise from internal congestion. In the cold fit, warm diluent and cordial drinks may be taken, at the discretion of the patient; such as barley-water, weak negus, tea, or gruel: external warmth should be applied, such as bottles, filled with hot water wrapped in flannel, to the feet, a mustard foot-bath, a mustard poultice to the pit of the stomach, friction of the back with warm stimulating liniments, or, in extreme cases, the hot-air-bath may be used. A full dose of laudanum, as from twenty-five to fifty drops, with an equal quantity of ether or compound spirits of ammonia, in a glass of water, may then be given; it has a most salutary effect in shortening the fit, and producing a tranquil sleep after it is over. When the tongue is foul and the stomach loaded at the commencement of the disease, it is better that the dose of laudanum should be preceded by an emetic of twenty grains of ipecacuanha. On the accession of the hot stage, the surface should be sponged with cold water, and cold diluent drinks or iced water should be taken; and if laudanum has not before been exhibited, a full dose (uncombined with ether or ammonia) should be given. During the sweating stage, tranquillity should be observed, and the perspiration carefully moderated; and if there is much exhaustion, weak spirits and water may be given; after a time the surface may be dried by friction with warm towels, and the linen changed.

At the coming on of ague the intermissions are often too imperfect to enable us to resort to anti-periodic remedies; but a purgative of calomel, from three to five grains, over night, followed by a dose of rhubarb and magnesia, or warm compound senna draught, in the morning, will always be of advantage; and where there is pain on pressure at the pit of the stomach, or along the margin of the ribs, the application of five or six leeches will be useful; and two or three grains of blue bill, or a grain of calomel every night, with an occasional purgative, may be given. General bleeding from the arm has been recommended by Dr. Mackintosh and Dr. Graves, but this is a more than questionable remedy, and only to be resorted to on competent medical authority.

As soon as a decided intermittent form is assumed, the most appropriate remedies are bark and its preparations (quinine), and arsenic. Two or three grains of the sulphate of quina may be exhibited every four, five, or six hours, or a larger dose, as five or six grains, at once, repeating the smaller ones at more distant intervals. Where the quina does not agree, or causes a sense of throbbing within the head, the doses should not be increased, and with some individuals it must be discontinued altogether, and arseniate of potash adopted. Neither should be given where there is any inflammatory or febrile action going on, which state should first be relieved by calomel, purgatives, and saline medicines. For children, the decoction of bark is the most eligible medicine, or a solution of the sulphate of quina may be administered as an enema. The solution of arseniate of potash is the anti-periodic remedy on which, next to quinine, the greatest reliance can be placed: it is much less exciting than quinine, but requires great caution during its exhibition. It should be given in moderate doses, and its effects carefully watched; and after a time, even should no bad symptom show itself, its use had better be suspended for a while, as it is apt to accumulate in the system, and evince its poisonous effects suddenly. We should commence with doses of five minims, gradually increased to ten, three or four times a-day, for an adult; and it had better be given shortly after a meal, by which means it is not so immediately applied to the coats of the stomach. The symptoms indicating that it acts prejudicially on the system, are tremors, griping pain in the stomach and bowels, itching of the face and eyelids, and redness and turgescence of the eye; and sometimes nettle-rash will break out on the skin. Where the ague is not arrested, an emetic of one scruple of sulphate of zinc may be usefully exhibited an hour before the accustomed time of accession of the fit, followed, after its operation, by a full dose of laudanum in brandy and water, or some aromatic water, the patient continuing to take the quinine or arsenic. The next best anti-periodic is the sulphate of zinc: three grains may be made into a pill with confection of opium, and two such pills, gradually increased to three or four, may be given three times a-day; no drink being taken for some time after, as it is apt to cause vomiting. Cobweb, given in ten-grain doses (formed into pills with syrup or mucilage), every three or four hours, has been highly eulogised. Various other medicines, as finely powdered charcoal, in doses of twenty grains, in brandy and water, every three or four hours, have been recommended. Where the stomach is deranged, an occasional dose of rhubarb and magnesia should be exhibited. A tea-spoonful of pepper in gin is a popular remedy for arresting the fit in some aguish countries. Bitters, in combination with aromatics, as powder of camomile flowers, or infusion of quassia and gentian, have proved successful. Anything making a strong impression on the mind—as fear, joy, anger, disgust, horror—will occasionally stop the fit. After continuing for some time, intermittents are often prolonged from habit: in this case, a journey, or change of scene and abode, are advisable. Intermittents are very apt to recur for a considerable time after, and therefore persons who have been once so affected should avoid excesses of all kinds, and exposure to the night air, or even the early morning air before taking food. In such cases a moderate quantity of spirituous liquor before exposure may be advisable, and some light tonic should be taken for a time, and the bowels kept well regulated by warm aperients, as compound decoction of aloes, or rhubarb and magnesia, in aromatic water, with an occasional dose of calomel or blue pill. The sleeping room should be in the upper part of the house; and a generous diet, and a moderate use of fermented liquors, are advisable for those who are obliged to reside in any malarious district; and the surface of the body should be kept warm with flannel next the skin.

After the disease is arrested it is advisable to give tonics for some time, but to vary the kinds, among which the different preparations of iron will be eminently serviceable. Dr. Graves,* when recommending the discontinuance of the quina when the ague has ceased, says, "The quina is the proper antagonist of the fit, and, while required, it is borne well by the constitution; on the contrary, if given when the fits are absent, the system becomes so accustomed to it, that should a relapse take place it will no longer exert its anti-aguish influence."

---

* Graves's Clinical Lectures.

In cases of relapse, the fit recurs on the periodic day, or that on which it would have come on had the disease continued. A knowledge of this law will be of great importance after protracted cases, in enabling a person to ward off a return of the disorder, as he can upon those days more effectually guard against its recurrence, by avoiding any exciting cause, as cold, fatigue, &c.; and should a well-marked fit, or shadow of one, occur, he must endeavour to arrest it at once by a large dose of quina, and, to prevent its recurrence, by a daily repetition of the dose for a few days. Dr. Meyer says that the majority of intermittents yield to a single ten-grain dose of quina, followed by a generous diet and preparations of iron, of which he prefers the ammonio-chloride of iron. "This treatment," he says, "suffices in most cases of obstinate quartan, complicated with enlarged spleen and liver, if endemic influences do not maintain the disease, or have not induced such changes in the blood as to require more time to overcome."—Braithwaite's Retrospect of Medicine, vol. xxv.

Amaurosis (*Gutta Serena*).

A partial or total loss of sight, arising from a disease of the retina, or optic nerve. Amaurosis may exist independently of any visible disease of the eye, or it may be complicated with it. Amaurosis is distinguished from other diseases of the eye, by the blackness and dilated state of the pupil, and by the absence of any other apparent defect. In some very rare cases the pupil is contracted. There is a total want of the natural expression, the eye rolls about unmeaningly, and the patient is unable to direct it at will towards any particular object. Amaurosis may attack both eyes at the same time, or it may be entirely confined to one eye; but when one eye has been long amaurotic, the other rarely escapes being similarly affected in some degree. It may take place suddenly, when a person is said to be *struck blind*; or it may come on in a few days or weeks; but more commonly its progress is very gradual, and several years elapse before blindness is rendered complete. The disease sometimes assumes an intermittent form, occurring at regular or irregular intervals, and is said to be temporary. Symptoms of threatened amaurosis are obscure vision, from specks, such as moths, gnats, or flies, appearing to float before the eyes, or as if the individual were looking through black crape: in the dark, these specks frequently appear luminous. There will be also occasional flashes of light, vertigo, fear of falling, and inability to walk in a straight line, or see objects directly in front, though they can be distinguished at certain angles or sideways; the cornea being at the same time perfectly clear, and uninjured in its texture.

The causes of amaurosis are extremely various, but they may all be considered as acting injuriously on the optic nerve and retina, or as affecting their functions by sympathy with other organs. Among them may be mentioned, too much exposure to strong and vivid light; over-exercise of the eye on minute objects, such mostly producing a degree of inflammation; over-fulness of blood in the brain, or, on the contrary, a deficient supply; disease of the brain itself; indigestion, which is a very frequent and common cause of sympathetic and periodical amaurosis; sexual excess; gout and rheumatic affections; over-nursing; the suppression of habitual discharges, &c.; and, in some cases, hereditary predisposition.

The treatment must always have reference to the cause: and where so much discrimination is required, on the appearance of any threatened symptoms recourse should be had to a medical man without delay, and in the meantime the eye kept perfectly at rest, the bowels rigidly attended to, all stimulants avoided, and a spare diet observed, unless there is evidence of excessive debility. If there are marked symptoms of fulness of blood, especially of the head and face, and if the defective vision is increased by causes which promote a determination of blood to the head, as stooping, &c, ten ounces of blood should be taken from the arm, and six leeches applied to each temple—or blood may be taken from the temples by cupping—and five or six grains of calomel should be then given, followed by a compound senna draught, with tincture of colchicum (one ounce and a half of compound senna mixture and twenty minims of tincture of colchicum), so as to produce full purging; a spare diet is to be observed, and perfect rest enjoined. Where there is deranged digestion, Richter has shown that emetics and purgatives are the most successful remedies. These should be repeated every second or third day for some time. If blindness supervene on hæmorrhage, protracted nursing, or long-continued discharges, these should be corrected, and the patient upheld by suitable and nutritious diet, and tonic medicines, and the bowels most carefully regulated by forms Nos. 118, 110, 125; Gregory's Powder, 31*a*, or Pill, 42*a*.

The vapour of ammonia may be applied once or twice daily to the eye, by putting a tea-spoonful of sal-volatile on a cup of hot water, and holding the eyes over it till the vapour causes slight smarting. Blindness has been cured by the removal of a decayed tooth. It has resulted from exposure to severe cold paralysing the facial nerves, and through them affecting the nerve of vision.

Hysterical amaurosis occurring without other apparent cause in females subject to hysteric fits, hysteric loss of voice, and other anomalous disorders of the nervous system, must be treated as hysteria (see *Hysteria*).

A knowledge of the various causes of amaurosis can only be acquired by a careful consideration of all the circumstances connected with the case: on this its successful treatment must depend, and where it is possible it should be placed under medical care.

When all symptoms of congestion of the brain and inflammatory action have been removed, and the disease has assumed a chronic form, great attention should still be paid to the stomach and bowels, and it may still be beneficial to make use of counter-irritants, such as large blisters along the whole course of the spine, or a seton in the nape of the neck. Galvanism, and electricity by sparks drawn from parts about the region of the orbit and ear, have been highly commended. Where there is unusual dryness of the nostrils, a pinch of Mr. Ware's mercurial snuff may be sniffed up the nose two or three times a-day, to re-establish an increased secretion of mucus. In cases of contracted pupil, or where the amaurosis is thought to be of syphilitic origin, a course of the solution of the bichloride of mercury has been found beneficial.

ANGINA PECTORIS (*Breast Pang*)

Is characterised by an acute constrictive pain in the breast, inclining rather to the left side, extending to the left arm, and accompanied with great anxiety, violent palpitation of the heart, and a sense of suffocation. The pain comes on suddenly, when the individual affected is walking, particularly after a meal, or ascending a hill, and subsides on his standing still; in all other respects he is perfectly well, and free from any difficulty of breathing. At first there are longer or shorter intervals of perfect health between the paroxysms. The painful sensations, which appear indescribable, are almost always referred to the heart, and are so distressing as to impress the mind with the feeling that stirring another step would be fatal. The patient is pale, haggard, and alarmed. At the commencement of the disease the paroxysms occur at irregular intervals, and soon subside; but after a time they become more frequent, the pains extend over a larger space, and by degrees lower down the arms, are of longer duration, and come on in all positions, whether walking or lying down, and frequently rouse the patient up from sleep in the night with the feeling that the heart has ceased to beat. In extreme cases it will be brought on by anything which hurries the circulation, agitates the mind or body (as in coughing, straining, or sneezing violently), or disturbs the digestion, particularly if it causes much flatulency. It will recur more or less frequently for years perhaps, and at length terminate in sudden death.

Angina pectoris more frequently affects men than women, and rarely either before the fiftieth year. It is generally connected with a full habit of body, and the seat of the disorder is in the heart or great blood-vessels; in some cases, however, it would appear to be entirely neuralgic (or nervous), although this is scarcely reconcilable with its too commonly fatal termination.

Treatment.—Angina pectoris, or breast pang, is a most suddenly alarming disease, and one in which we can never contemplate a cure. The object must be to alleviate the paroxysm when it occurs, and, in the interval, to diminish the susceptibility of the individual to its attacks. On the unexpected occurrence of a paroxysm we must resort to the most readily diffusible stimulants, and give hot spirits and water, as hot and strong as they can be borne, in the first instance, and, as soon afterwards as possible, a full dose of sal-volatile, sulphuric ether, tincture of belladonna, and laudanum, combined. We should place the patient in a recumbent posture, and apply a large hot mustard-poultice over the breast, or a piece of flannel, moistened with equal parts of spirits of turpentine and liquor of ammonia; and administer five grains of chloride of mercury (calomel), and a warm aperient draught (as ℥j. of compound decoction of aloes, ʒij. of tincture of jalap, and ℥ss. of infusion of senna). In the interval of the paroxysms the patient should take a dinner pill (No. 12) daily, live abstemiously, take moderate exercise, but not walk up hill or immediately after a meal, and should avoid all violent emotions, and wear a belladonna plaster on the chest. The compound galbanum pill, with pill of aloes and myrrh (No. 19), and an issue or seton in the chest, have been strongly recommended; and, in cases where the disease appears purely nervous, the curative effects of sulphate of zinc, valerianate of zinc, and oxide of silver, have been highly spoken of.

Two cases of angina pectoris are recorded in the sixth volume of the Medical and Physical Journal as having been cured by the application of pieces of calico moistened with a solution of tartarised antimony (in the proportion of one drachm to a pint of warm water, and half an ounce of camphorated spirits) several times a-day.

Aphonia (Loss of Voice).

Aphonia may be a symptom of catarrh or cold, affecting the upper part of the wind-pipe (larynx): under these circumstances it is commonly of little consequence, and the voice will usually return on the catarrh being relieved. But when produced by causes acting on the nervous system, as from powerful mental emotion, or if it occur, as it now and then does, without any assignable cause, it is frequently a very obstinate disorder.

Dr. Graves says that there is a form of hoarseness occasionally observed in boys and girls, mostly preceded by a slight sore-throat and catarrh, which did not require perhaps either medical or domestic treatment, the general health being good, and there being no difficulty of breathing, but the patient only speaking in a whisper. This condition may last for weeks and even months, unaccompanied by any other general or local ailment whatever. Aphonia is peculiar to some families.

It depends on a relaxed and weakened state of the vocal cords, and perhaps of the muscles of the larynx.

The most efficient treatment is the use of some stimulating gargle, as a drachm of tincture of capsicum mixed with six ounces of decoction of bark or infusion of roses, increasing the capsicum by degrees to half an ounce; gargling the throat (with the head well held back) three, four, or five times a-day. The throat should also be actively rubbed with the croton oil liniment (No. 136*a*) night and morning, until a crop of pimples is produced, which should be allowed to dry up and fall off, and the application should be repeated after the same mode for some time. In addition to these measures, if the disease continue, strict silence should be enjoined, some alterative or tonic medicine given, as bark or iron with iodine (Nos. 130, 131), and change of air had recourse to.

Some persons are subject to lose their voice on exposure to cold or damp air,—this is an evidence of great susceptibility in the membrane lining the upper part of the windpipe. On its first occurrence, relief will be afforded by the application of a warm bran poultice over the throat, and by taking a tea-spoonful of paregoric elixir, and the same quantity of sal-volatile, in a glass of water, on going to bed. Persons so susceptible ought never to expose themselves to cold damp night air without their mouths being covered by a handkerchief or respirator, and should acquire a habit on such occasions of keeping their mouths shut and breathing through the nostrils. Inhaling the vapour of iodine and henbane (by putting a tea-spoonful of the two combined on some hot water in an inhaler, or in a narrow-topped vessel) is sometimes beneficial. Loss of voice is not unfrequently connected with hysteria or paralysis, and is to be treated as such: in such cases it is often most obstinate, although on some occasions the voice will return suddenly. The gargle, with frictions and inhaling as before mentioned, may be resorted to; and should these fail, cold water in a stream may be directed on the throat, the patient being laid on one table and the head supported on another a little apart from the first, and the bosom covered,—the stream may then be quickly dashed or poured on the neck, which should be afterwards well rubbed.

Aphtha, or Thrush.

An eruption of small white or ash-coloured ulcers, like spots of cream or curd, on the borders of the lips and inside the mouth and cheeks of infants, and sometimes extending to the throat and fauces. The appearance of thrush is mostly preceded by drowsiness and general uneasiness. It rarely occurs in infants who are properly fed on breast-milk only, and is for the most part dependent on irritation of the bowels from improper feeding of the child, or in some cases from unsuitable diet taken by the nurse. The aphthæ do not extend beyond the throat, but an increased action of the bowels is mostly set up, giving rise to excoriation about the anus and nates. The thrush, under common circumstances, if proper attention be paid to it, usually disappears in a few days; but in some very rare cases the ulcers assume a livid appearance, increase in size, and become gangrenous,—and it is then a dangerous malady and much to be dreaded.

Treatment.—Some mild antacid aperient should be administered daily, as one or two grains of powdered rhubarb and five of magnesia in some dill or other aromatic water, or with a grain of ginger, and a small portion of the borate of honey should be put on the tongue of the infant, who will itself smear it about the mouth, which is far preferable to any other mode of applying it. Where diarrhœa prevails, the chalk mixture of the Pharmacopœia should be given, and, if accompanied with irritation, a small portion of laudanum (as No. 54) should be added (see Diarrhœa) ; the nates should be well dusted with hair-powder, or bathed with Goulard-water two or three times a-day. In aggravated cases, a solution of nitrate of silver, in the proportion of one scruple to one ounce of water, may be applied to the mouth, &c., and tonics (Nos. 123, 124) and change of air had recourse to. Should the child be at the breast, the nurse's diet should be carefully attended to.

Aphtha will now and then occur in adults from their taking food that is indigestible, or that does not agree with the particular individual (from idiosyncrasy, as it is called). In this case an active aperient is the most appropriate remedy. Aphthæ appearing towards the termination of other diseases are an evidence of feebleness; the patient should therefore be upheld by wine, tonics, and a generous diet, and a lotion frequently used of borate of honey, syrup of poppies, and decoction of quince-seed, as in the following form:—

Take Borate of Honey;
Syrup of Poppies; of each one ounce;
Decoction of Quince-seed; and
Water; of each three ounces;
Mix for a lotion.

The mineral acids, or a solution of nitrate of silver, may be applied with a camel's-hair pencil.

Apoplexy

Is characterised by a sudden loss of sense and power of voluntary motion, usually accompanied by an apparently deep sleep, with stertorous breathing or snoring; the face is commonly flushed or livid, the pulse strong and hard (bumping), perhaps irregular, and occasionally feeble. The fit may come on without any warning symptoms, as if the individual were knocked down by a blow, or it may be preceded by severe and acute pain in the head, or by faintness and sickness, sometimes accompanied by vomiting, the patient being pale and with a cold skin: in some cases convulsions occur, in others the limbs are stiff and rigid, or flaccid and paralysed. Now and then a patient does not lose his senses entirely, but although unable to speak, seemingly comprehends questions put to him and answers them by signs. Apoplexy is often preceded for some time by giddiness, temporary vertigo, headache (either constant, as if the head was bound round or pressed upon; or of a severe darting kind, coming on at intervals, and apparently too acute to be borne long), loss of memory, indistinctness of vision, the appearance of objects floating before the eyes, faltering speech, numbness of the arms or legs, irresistible drowsiness and dread of tumbling: for the most part the bowels are costive, at other times relaxed, and the urine is passed involuntarily.

Causes.—Compression of the brain from too great fulness of blood in the vessels, from effusion of blood in consequence of the rupture of a blood-vessel, or of lymph, perhaps the result of previous inflammation. It may be occasioned by anything that increases the flow of blood towards the brain, or prevents its return from it: among the former are excessive exertion of any kind, long stooping, sudden emotion, or violent passions; among the latter, pressure round the neck, too full feeding, over-loading of the stomach, drinking largely of spirits, or taking opium or other narcotics in excess. There may be a predisposition to apoplexy inherited from the parents; or it may be owing to the conformation of the body, as from having a large head, a short thick neck, a red face, and a fulness of the system; or it may arise from a suppression of customary discharges, a sedentary habit, or disorder of the heart: nevertheless it does occur in persons of all varieties of formation, as in those who are thin, pale, tall, and spare. It may occur at any age, but does not commonly do so before the 50th year, and is most prevalent between the 50th and 70th years.

Prevention.—As it is not in our power to alter hereditary tendency, the natural formation of the body, or the general inclination to plethora, persons predisposed to it should guard against its exciting causes. The individual of full habit should live sparingly, avoid stimulants, such as fermented and spirituous liquors of all kinds, take regular and moderate exercise, sleep on a firm pillow with the head elevated, without anything round the neck; the bowels should be kept well regulated by saline purgatives generally (see No. 9 or 23), and a dose of calomel and colocynth occasionally (No. 35 or 40). Those of a spare habit require somewhat more discretion in their management; their diet should be nourishing, easy of digestion, and taken frugally; if they have heretofore been accustomed to take fermented liquors, such as beer or wine, either may be sparingly allowed, provided they do not affect the head, but spirituous liquors and spices should on no account be taken; all nervous excitement should be avoided; exercise short of fatigue, as moderate walking and carriage exercise, and tranquillity of body and mind, are essential to be observed.

Treatment.—If a person falls down, and is found in a state of profound sleep, &c., resembling apoplexy, it may be a question whether such a state be the effect of intoxication or of taking opium; this, if possible, should be ascertained before active measures of depletion are put in force, as insensibility and unconsciousness may arise from either cause, or from an intense fainting fit. During an apoplectic fit every method should be pursued to lessen the force of the circulation towards the brain, and favour the return of blood from it; the patient should be placed in a sitting posture, with the head raised and the legs hanging down; all pressure should be removed from the neck by loosening the cravat, shirt-collar, &c.; air should be freely admitted by opening the doors and windows; if the pulse be full and strong, with signs of fulness about the head, turgescence of the face, &c., blood should be freely taken from the neck or arm, short of producing fainting; nor should we be deterred from bleeding, although the face be colourless, provided the strength of the pulse warrants it; but if the skin be pale and cold, and the pulse fluttering and feeble, the patient must be treated as if in a fainting fit, by the application of cold water, ammonia, &c., and a warm foot-bath, with mustard cautiously used, and we should wait and watch till he is aroused, and then be governed by circumstances. After one full bleeding, the vessels of the head may be further relieved by cupping, if required, or by a smaller bleeding in two or three hours; or it may be advisable to wait the effect of purgatives, which are of especial benefit, and should be given as soon as the patient is enabled to swallow: ten or fifteen grains of calomel may be placed on the tongue and washed down with a black draught (No. 20). If he cannot swallow, great caution is required lest, in trying to force him, anything should get into the wind-pipe and cause suffocation: in such a case, two or three drops of croton oil may be rubbed on the back of the tongue, and, without waiting its operation, a purgative lavement should be administered, which may be made with two or three table-spoonfuls of common salt, plenty of oil or butter, and a pint of warm water; or a table-spoonful of soft soap dissolved in the same quantity of water; or an ounce of spirits of turpentine rubbed down with the yolk of an egg and a pint of gruel. One of these may be repeated every two hours: their effect is often of the most decided benefit. If the patient be not roused by the foregoing means, blisters should be put to the nape of the neck or behind the ears, and to the calves of the legs. When the head is hot, the hair should be removed, and cold lotions of water, iced water, or vinegar and water, applied to the head. When the attack is immediately after a full meal, unloading the stomach by an emetic—as a scruple of sulphate of zinc, combined with two grains of tartar emetic—will be serviceable; but it is a doubtful remedy under other circumstances, unless the attack arise from the effects of opium or spirits.

When all immediate danger is passed by, the bowels should be kept carefully open, an abstemious diet observed, and the patient watched and not interfered with too much: in all cases it is essential not to carry the lowering remedies too far; but what is more carefully to be avoided is any attempt to strengthen the patient by meats, drinks, and tonic medicine. In palsy following apoplexy, it is better to trust to time, care, frictions and shampooing, than to resort to electricity and galvanism before the brain has recovered its healthy state. When the disease arises from suppressed discharges, these should be invited to return by the application of leeches and warm poultices; or new discharges should be established by setons or issues, either of which may be used with benefit in those predisposed to apoplexy.

Persons who have once suffered from an attack of apoplexy should most scrupulously avoid every cause likely to reproduce it. A slight indiscretion may be fatal: they should not make any great strain,—as even pulling on a tight boot has caused a fit; they should forego all extremes of heat and cold, as heated rooms or hot baths; the head should be kept cool, and daily washed with cold water; the feet should be kept warm, and never suffered to be long wet; they should never go to bed with a full stomach, or lie with the head low, or with anything about the neck. These cautions are of considerable importance; the circulation, which is slower during sleep than when awake, is further interfered with by fulness of the stomach. The low posture of the head favours the slow motion of the blood, and tight collars impede its return from the brain: under these circumstances a fit of apoplexy is very likely to follow: hence we hear of people being found dead in bed.

ASTHMA

Is a disease of the lungs characterised by paroxysms of laborious breathing, mostly performed with a wheezing noise. A paroxysm is commonly preceded, in the after part of the day, by listlessness, drowsiness, hoarseness, slight cough, oppression of the chest, flatulence, and acid eructations, and the patient goes to bed feeling extremely ill. Towards midnight the fit comes on with most laborious breathing and loud wheezing: the patient is obliged to get into the erect posture, or sit up in bed, with his body bent forward, and his arms resting on his knees, from a dread of suffocation; or he rushes to the open window or door for cool air. The face is sometimes flushed or livid, at others deadly pale; the body is usually covered with perspiration, but the feet are cold; the pulse is small, and mostly intermitting; there is palpitation of the heart; the urine is pale, and now and then passed involuntarily; there is occasional vomiting, and the bowels are mostly relaxed; the patient has a painful cough, and is scarcely able to speak. This state of things will last for some hours, to the great alarm of those around, when a gradual remission of the distressing symptoms ensues, with an expectoration of frothy mucus, followed by tranquil sleep. The next morning the patient will feel moderately well, but for some days there remains a tightness across the chest, and difficulty of breathing on slight bodily exertion, and for several succeeding evenings slighter paroxysms are apt to recur, and may then subside, and a longer or shorter interval elapse before another violent fit takes place.

When the paroxysm terminates with expectoration, it is called moist or Humid asthma; when there is no expectoration, Dry asthma; and there is a third variety, called Spasmodic, which occurs in persons free from disease of the heart or lungs. Dr. Graves says, "I have in my recollection cases of several young men, subject to severe paroxysms of asthma for five or six nights in succession, and who, immediately after the paroxysm disappeared, could use any active exercise as well as the most vigorous and healthy of their companions." (Clinical Medicine, p. 85.)

It is not unusual for spasm of other parts to accompany fits of spasmodic asthma; as flatulent colic, from enormous distension of the abdomen: now and then a copious flow of pale urine, as in hysteria, giving the disease a nervous character. This variety often comes on most unexpectedly, and terminates as abruptly; it is readily brought on by strong mental impressions and a fit of indigestion.

Every occasional difficulty of breathing is often erroneously called asthma, but true asthma is generally connected with some derangement in the structure of the air-passages or heart, and does not usually show itself till persons are somewhat advanced in life. It is, however, met with in individuals of all ages, and many have an hereditary tendency to it, and in these an attack is more readily brought on by the general exciting causes, such as sudden change of temperature, exposure to wet, indigestion, extreme flatulence, particular states of the atmosphere, peculiar odours (as of new hay or ipecacuanha), chronic bronchitis, pressure of tumours on the nerves supplying the neighbourhood of the throat.

When once a paroxysm has occurred it is reproduced from slight causes, and mostly returns again and again, like other spasmodic disorders. It is of all diseases subject to the most unaccountable variations. Thus one person is free from the disease in the close atmosphere of London, and at the river-side; a second cannot breathe except in the country; a third will be affected by sleeping in the back of a house, without any reference to aspect; a fourth will be relieved by coal smoke; and in a fifth a paroxysm will be induced by a smoky room. (Graves's Clinical Medicine.)

Treatment.—It is very distressing to witness a severe paroxysm of asthma: it seems almost impossible that the patient should survive the difficulty of breathing. Yet it is rarely or never fatal, and the sufferer, in the great majority of cases, recovers, and within a few hours appears as if nothing unusual had been the matter. It is almost as capricious in the variety of medicinal means appropriate for its relief, as it is in the causes of its occurrence. "Change of air is most important; but the kind of change that shall prove most beneficial can only be learned by experience. Some sufferers lose their paroxysms south of the olive line; others are easiest in a cold atmosphere; moisture, the bane of some, greatly mitigates the disease in others;" &c. (Dr. Walshe: in Braithwaite's Retrospect, vol. xxv.)

During the fit our object must be to moderate its violence and shorten its duration; in the intervals, to prevent its recurrence, by attending to the general health, strengthening the system, and carefully avoiding its exciting causes. Where there is evidence of fulness of blood and congestion of the lungs, or the asthmatic fit has supervened on bronchitis, it may be proper to take away blood, either by cupping between the shoulders or from the arm; but this is not to be done without medical advice and due consideration, as whatever tends to enfeeble the patient will aggravate the disease. In other cases, where there is reason to believe that the stomach is loaded, an emetic of ipecacuanha, combined with tartar emetic, will be most useful (see Emetics), followed after its operation, should the fit continue, by an antispasmodic, of which the best perhaps is laudanum, (given in a full dose with the tincture of lobelia and ether, No. 45), or the mixture of assafœtida (No. 47), or an enema of half-a-pint of the mixture (No.48) may be administered. A cup of hot coffee will often afford relief. When the fit has lasted some time, and expectoration has commenced, sipping warm diluent drinks, as barley water, will tend to increase the expectoration and curtail the fit, and then it is better to allow the patient to remain tranquil. Some stramonium, cut and smoked in a pipe, will sometimes act as a charm, and many subject to asthma feel quite secure by using it; on others it has no effect. When it is to be smoked, the lungs should be exhausted of air by a forced expiration, which should be repeated after the first few inhalations; the smoke of the stramonium is thus more effectually applied to the lungs, and if the saliva be swallowed the drug will be in a twofold manner introduced into the system. Dr. Watson commends inhaling the fumes of nitre, "for which purpose some large pieces of blotting-paper may be dipped in a saturated solution of it, dried, and then set fire to on a plate; the fumes are thus soon diffused throughout the apartment." The fumes of turpentine (which may be vapourised by pouring some boiling water on a large flat dish or plate, and a table-spoonful of spirits of turpentine on the water) are also sometimes beneficial, either in mitigating or warding off a fit. Where there is great dryness and want of expectoration, the steam of warm water may be inhaled, or a tea-spoonful of sulphuric ether, (with or without a tea-spoonful of tincture of henbane, or of the tincture of lobelia,) mixed together and poured on the top of the water; or a drachm of chloroform may be sprinkled on a cambric handkerchief, doubled up funnel-shape and applied to the nose, and the vapour inhaled, care being taken not to produce insensibility. In spasmodic asthma the chest may be fomented with flannels wrung out of hot water, or a large mustard poultice or pieces of linen moistened with warm spirits of turpentine, may be applied; and when the extremities are cold, they may be immersed in a hot mustard foot-bath. This disease is sometimes the effect of spinal irritation; if any tenderness is discovered there, some leeches or a blister should be applied over the part. A threatened fit may now and then be prevented by immersing the feet in a mustard foot-bath, drinking a cup of hot coffee on going to bed, smoking the stramonium, and taking, if required, the antispasmodic draught (No. 45), immediately the least sensation of chilliness is felt. An asthmatic person soon becomes sensible of his peculiarities as to the most favourable locality for residence, and must govern himself accordingly; the digestion must be carefully attended to, a nutritious but moderate diet taken, with daily and regular exercise in the open air at all seasons of the year, the surface of the body being kept warm by suitable clothing. The regular use of the shower-bath, cold in summer and tepid in winter, rubbing the surface well after either with coarse dry towels or horse-hair gloves, is beneficial; or, when the shower-bath is not admissible, sponging the body with water, or the chest with vinegar and water or salt and water. Swinging dumb bells, rowing a boat, or some similar exercise that causes expansion of the chest, should be practised. Asthma, although not a fatal disorder, is usually of considerable duration, and of well-marked character, and may be generally warded off or much mitigated by a well-directed domestic management. The pills composed of squill and compound galbanum (No. 74), taken nightly, and a dose of compound decoction of aloes in the morning, or an active aperient pill (No. 41) occasionally, and a cup of hot coffee before rising from bed, will be found serviceable as general remedies when the sufferer is not quite well. Dr. Guy recommends, where much flatulence prevails, alum combined with ginger (No. 48), and, as tonics, preparations of iron, zinc, silver, and bismuth. Dr. Eben. Watson states that spasmodic asthma frequently depends on disease of the glottis and larynx, and that the application of a solution of nitrate of silver (of one scruple to the ounce of water), by means of a small probang, daily for several weeks, is the most effectual remedy. (No. 1, Glasgow Medical Journal.)

ATROPHY (*Wasting*)

Is a progressive and morbid diminution of the bulk of the whole body or of a part.

Symptoms.—This disease frequently comes on without any evident cause. It is marked by a gradual wasting of the body, unaccompanied either by difficulty of breathing, cough, or any evident fever at first, but is usually attended with a loss of appetite and impaired digestion, depression of spirits, and general languor. In children of a scrofulous habit, atrophy is often accompanied by an enlargement of the mesenteric glands. Atrophy may be partial—affecting any one organ or limb only.

Causes.—The disease is usually symptomatic, or it may arise from excessive evacuations, improper nourishment, deficiency of food, protracted suckling, too great indulgence in spirituous liquors, unwholesome air, or mental uneasiness, &c.

The defect of nutrition which constitutes atrophy seems to be resolvable into a diminished supply of healthy blood through the arteries. Pressure of any kind permanently exercised upon any of the large blood-vessels, so as to lessen, without completely preventing, the supply of blood, as tight ligatures or bandages, will be found to give rise to atrophy. Palsy, depending upon disease of the brain or spinal cord; pain connected with disease of a joint; mere inaction or disuse of the parts from perversion of the will, as from the self-inflicted penance of the Fakir, will produce the same effect.

Atrophy is usually very difficult of cure, and not unfrequently terminates in dropsy. For its treatment we must endeavour to find out the cause, and, if possible, remove it.

If occasioned by worms, these must be destroyed by vermifuge medicines; if by sexual excesses, or continuing to give suck too long, these must be wholly discontinued; if from an impoverished diet and unwholesome air, these must be quickly changed; if from a scrofulous disposition, alteratives and tonics must be resorted to in due time; and if from a venereal taint, which is sometimes the case, mercury must be administered, with the decoction of sarsaparilla, and other auxiliaries; and, in like manner, the treatment will be the same with that of every other disease which it may either accompany or of which it may be the effect.

The diet should be nutritious and generous, and such as is easy of digestion: milk, calves' feet, and other jellies, are appropriate, with also a moderate portion of beer, wine, or, on some occasions (if the stomach is feeble), spirits; regular exercise should be taken in the open air, of which walking is most to be commended. The surface of the body should be well rubbed, and change of scene and sea-bathing may be resorted to. Of medicines, cod-liver oil is likely to be most beneficial, particularly if there be glandular enlargements.

Bilious Complaints.

The bile (as has been shown in the physiological part of this work) is a bitter fluid, secreted by the liver from the venous blood coming by the portal vein from the intestines, and which blood has already served other purposes in the system; one part of the bile passing on to the intestines, and the other regurgitating into the gall-bladder: the state of the intestines being thus very much influenced by the quantity and quality of the biliary secretion. Healthy bile, taken from the gall-bladder, is of a yellow or greenish-yellow colour, of a consistence similar to oil; and, when strongly agitated, froths like soap-suds. The bile has been spoken of as a saponaceous fluid, and consists of a peculiar principle in combination with soda. The greater number of fatty substances are capable of being dissolved by it. Scourers sometimes prefer the gall (bile) of oxen and other animals to soap, for the purpose of cleaning wool.

The most obvious use of bile in the animal economy is to separate the chyle from the chyme, to assist in the assimilation of food during digestion, and in exciting the peristaltic motions of the intestines ; hence in jaundice, in which disease the bile does not take its natural course into the intestines, the bowels in general are extremely torpid. It is principally the colouring matter of the bile which passes off by the bowels, and the colour of the fæces seems to be due to its presence, since when this fluid is deficient they are pale and clay-coloured ; when it is depraved, owing to the deranged action of the liver, they are dark, or otherwise discoloured. The quantity of bile which is voided with the fæces is very small, as the greater portion is absorbed into the system along with the food, and appears intended to support respiratory combustion,—its constituents, carbon and hydrogen, having a strong affinity for oxygen, with which they unite in the lungs, and pass out of the body in the form of carbonic acid and watery vapour ; the quantity of carbon thus excreted probably amounting, in a healthy adult, to about thirteen ounces, on the average, daily.

Biliary complaints are of very frequent occurrence, and there is no doubt that the vigorous state of the system depends, in great measure, on the due secretion of bile : the healthy action of the liver is, however, so much influenced by the state of the stomach and other digestive organs, that its disorder forms only one feature in the group of symptoms, as it is scarcely possible for one of these organs to be affected without others suffering. We might, therefore, with great propriety reserve the consideration of all such disorders for the subject of Indigestion : still, as in daily life bilious headaches and bilious cholera are more generally spoken of, it may be well to treat of them here.

Dr. Graves says that the state of the biliary system depends on the general state of the health, and that the absence or redundancy of bile is not the cause but the consequence of disease.

Bilious or sick headache generally comes on when rising from bed in the morning, or soon after. The pain at first is situated on one side of the head, mostly over one eye and temple, occasionally on a particular spot in the forehead, and is usually accompanied with a degree of nausea or indisposition for food ; but if food can be taken, as a cup of hot coffee or tea, the pain will often be relieved, perhaps from arousing the digestive functions. Where the pain continues during the day, it becomes more diffused over the head, and now and then there will be singing in the ears, confusion of mind, and extreme restlessness or complete prostration, with sickness and vomiting, and usually a constipated state of bowels. Sometimes a profuse action of the bowels will occur, to the great relief of all the urgent head symptoms. The pain may exist for a few hours only, or last for several days, attended with much suffering and despondency.

In those who suffer habitually from sick headache, it probably arises from some derangement of the biliary secretion, either as to quantity or quality, or its not being properly assimilated with the nutriment: at other times it may be caused by the state of the stomach itself. Be this as it may, it is mostly traceable to some error in diet, as from taking either indigestible food or too largely of animal food or stimulating drinks, without sufficient exercise; hence languor, drowsiness, loss of appetite, headache, giddiness, and depression of spirits. Sick head-ache is said sometimes to arise from the habitual use or abuse of purgatives, by which the tone of the alimentary canal is enfeebled. "Under any circumstances," Dr. Elliot says, "this is a most intractable complaint."

Treatment.—If the disorder arise from an adventitious cause, and is not very severe, a dose of rhubarb and magnesia, followed by a tea-spoonful or two of sal-volatile, will often be sufficient. When the pain is intense, and accompanied by nausea (as we have observed that these disorders are often spontaneously relieved by vomiting and purging), an emetic of one scruple of ipecacuanha powder and one grain of tartar emetic may be given, followed after its operation by an aperient pill of compound rhubarb with blue pill (No. 42); otherwise, in the first instance, an active purgative, as three grains of calomel, followed by a compound senna draught. After the stomach and bowels have been cleared, it is advisable, in order to counteract the disposition to this disorder, that the diet should be carefully regulated,—all fat meats and pastry should be avoided, as also stimulating drinks, and the patient should live sparingly and take a due portion of exercise, which not only aids the digestive process, but also favours the elimination of noxious materials from the system by the action of respiration and perspiration; the action of the bowels should, if necessary, be for some time regulated by rhubarb with soda or magnesia, as five or six grains of each before dinner, or a dinner pill; but if regularity of bowels can be preserved by a due admixture of vegetables with other food, it is preferable to the habitual use of medicine.

Bilious cholera is characterised by nausea, pain and distension of the stomach and bowels, succeeded by frequent purging and vomiting, for the most part of bilious matter, accompanied with severe griping pains, cold clammy sweats, and often cramp of the lower extremities. This is for the most part a disease occurring in hot summer or autumnal weather; but in warm climates it is met with in all seasons of the year, particularly in persons who have recently arrived from colder ones. The violence of the disease in mild climates is usually proportioned to the degree of heat, and sometimes in hot seasons the disease becomes epidemic. It has been considered that the high temperature causes some derangement in the biliary secretion, the bile either being more acrid, or being secreted more abundantly than usual. It now and then has appeared to arise from a sudden chill obstructing the perspiration, and more frequently from taking indigestible food, particularly acid fruits, as melons, cucumbers, &c. These causes probably would not have given rise to the disorder without the predisposition caused by the extreme heat, and perhaps by transitions to cold or exposure to currents of air. That the functions of the liver are greatly deranged in bilious cholera, there can be no doubt; but as the vomiting and purging exist long before the bile appears in the matters ejected, it is evident that there is a highly excited state of the mucous surfaces wholly independent of the biliary secretion. The causes of cholera, as well as the symptoms and the appearances after death, evince clearly that the disordered action affects the liver and mucous surfaces of the stomach and intestines.

The attack is sometimes preceded by threatening symptoms, such as a considerable degree of languor, drowsiness and headache, pain between the shoulders or under the right blade-bone, tenseness of the abdomen, with flatulence and acrid eructations. The complexion is dusky or bilious-looking, the tongue furred, the urine high-coloured, and the bowels either very costive or disturbed with diarrhœa, the motions being pale. On the occurrence of these symptoms, one or two doses of calomel of three grains, at intervals of a day, should be taken, each dose being followed by a draught of rhubarb and magnesia; a suitable regimen should be observed, with toast-and-water for drink at dinner, with perhaps a dessert- or table-spoonful of brandy added: by these means the attack may be warded off. At other times the attack commences, without any warning whatever, with the violent train of symptoms just enumerated, which may last for one, or two, or three days, and then gradually subside. On some, but rare, occasions the symptoms are much more formidable from the first, added to which there is extreme prostration of strength, great anxiety, distension of the abdomen, hurried respiration, continual hiccup, coldness of the extremities, and feeble and intermitting pulse, terminating within twenty-four hours in death.

Treatment.—The stomach is generally so extremely irritable from the first, that no medicine can be retained: fortunately, in these cases restricting the patient to diluent drinks, such as toast-and-water, barley-water, &c., and weak animal broths, will of itself often effect a cure. A saline draught in a state of effervescence is refreshing, and may be given; small lumps of plain ice allowed gradually to melt in the mouth, and slowly swallowed, allay the thirst, cool the stomach, and will often tranquillise it, when nothing else will: prussic acid and creosote are of no avail. Where the bowels are confined, five or ten grains of calomel, combined, or not, with an equal quantity of prepared chalk, should be placed on the tongue and allowed to pass down with the drinks; this should be followed by the administration of an enema, and repeated at intervals till the bowels act; and the abdomen should be fomented with flannels wrung out of hot water, and afterwards a large mustard poultice applied. Where there is diarrhœa, two or three table-spoonfuls of the compound chalk mixture (form No. 54) may be given every three or four hours. Where there is extreme prostration of strength, as soon as the stomach will admit of it, a full dose of laudanum should be given, as from twenty to forty minims, in brandy and water, or in the chalk mixture, or in a saline draught in a state of effervescence; or one or two grains of solid opium may be given, combined with double the quantity of calomel, and at the same time brandy and water or ammonia. Warmth should be applied to the surface by means of hot blankets and bottles of hot water to different parts, and the feet should be immersed in a mustard foot-bath without raising the patient from the bed: immersion in a hot bath has been recommended, but the difficulty of doing this is more likely to increase the feebleness of the patient than otherwise. If the opium continues to be rejected by the stomach, an opiate enema should be administered: it is occasionally most efficacious in relieving the severe pain, and may be repeated as circumstances indicate. After the violence of the paroxysm has somewhat subsided, a mild aperient draught, or a dose of calomel, with the compound rhubarb pill (Nos. 38 and 40), has been recommended for removing any diseased secretions; but more commonly, rest to the stomach and bowels is the best restorative, and observing a farinaceous diet, with a moderate quantity of beef-tea or chicken-broth, for some days, gradually resuming one more generous, with a portion of brandy or wine; and in some cases tonics will be requisite to restore the strength,—for which purpose the preparations of calumba and cascarilla, with aromatics, are most appropriate (see forms Nos. 122, 123, 124).

Bladder, Inflammation of.

The bladder, being the receptacle for the urine after its secretion by the kidneys, is the seat of various painful disorders, not only affecting its own structure, but frequently connected with disease or derangement of the neighbouring organs, as of the kidneys in morbid urinary secretion (see Stone), suppression of urine, &c.

Symptoms of inflammation of the bladder are burning and throbbing pain at the lower part of the belly, extending to the groins, tenderness on pressure, a frequent desire to pass urine, which is voided in very small quantities with great difficulty, and sometimes only when resting on the knees, and attended with exquisite pain. The urine is high-coloured, perhaps bloody; there is tenesmus, now and then vomiting, and always fever.

Causes.—Over-distension of the bladder from retention of urine,—females, from motives of false delicacy, often entailing upon themselves painful and incurable affections of this organ; mechanical injury, by falls or blows when the bladder is full; turpentine or cantharides either taken into the stomach or applied to the skin; exposure to the vapour of turpentine; local irritation from stone in the bladder; gonorrhœa; stricture of the urethra; cold, &c.

Treatment.—Leeches should be applied immediately over the seat of pain, and followed by fomentation; or, if possible, the patient should be immersed in the warm general or hip-bath; from three to five grains of calomel should be given, and afterwards a dose of castor-oil and an emollient enema. Where the spasm is violent, a drachm of laudanum administered in the enema, and repeated at intervals, will often quiet it, and enable the patient to pass urine. Diluent mucilaginous drinks only should be allowed, and these in small quantities, until the bladder is relieved, for which purpose even the catheter should be passed if necessary.

When the symptoms do not subside, and the urine retains its acid quality (known by its turning blue litmus-paper red), Sir B. Brodie recommends two grains of calomel and half a grain of opium, to be taken three times a-day;—where the urine is alkaline (turning reddened litmus paper blue), and depositing a quantity of adhesive mucus of a brownish colour, fifteen or twenty minims of colchicum wine three times a-day for three or four days. After all the acute symptoms have subsided, it will be prudent to observe a well-regulated diet, and in some cases to take thrice a-week one of the following pills at bed-time:—

Take Mercurial (Blue Pill) twelve grains;
Ipecacuanha Powder, three grains;
Acetous Extract of Colchicum, six grains;
Mix, and make into six pills;

and occasionally an aperient draught of compound senna or rhubarb and magnesia. A spoonful of brandy in half a pint of water or soda-water may be taken at dinner but all mixed liquors, such as punch, should be scrupulously avoided. Occasional causes of the disease should also be guarded against. In the event of the disease assuming a chronic form, and being accompanied by mucous discharge or irritable bladder, see the following sections.

Bladder, Mucous Discharge from.

The bladder is subject to chronic inflammation or mucous discharge, accompanied with irritation, such as occurs when there is a stone in the bladder. A pint of this mucus or more will sometimes be discharged in the day. Under common circumstances, the mucus subsides to the bottom of the vessel, and is quite white and of a glairy consistence; at other times dark, resembling bird-lime, and ultimately becoming of a purulent nature; it sometimes blocks up the urethra, so that difficulty is experienced in making water. This discharge is now and then preceded by acute inflammation: it is generally derived from the surface of the bladder, which becomes much thickened (hypertrophied); or it may depend on ulceration of the organ, or fungoid tumour, and the discharge is then accompanied with blood united with the phosphates; or it may be caused by disease of the prostate gland, ureters, or kidneys. When it attacks aged, and more particularly intemperate persons, it occasionally proves fatal. When persons are attacked with gonorrhœa late in life, the disease often runs inwards to the neck of the bladder and the mucous membrane lining it, and the pain of the loins, bladder, and urethra is mostly very severe and distressing, and wears the patient out.

The Treatment, for the most part, should be antiphlogistic, and the bowels regulated by oily purgatives. Where there is great pain, leeches should be applied to the perineum or above the pubes; plenty of diluent drinks should be given, and such remedies as stimulate the mucous membrane, as decoction of uva ursi, pareira brava, or buchu (Nos. 68, 69, and 70); to either may be added the nitric or muriatic acid diluted, and tincture of henbane, in doses of fifteen minims of each. Where the discharge is not accompanied by great irritation, turpentine and balsam of copaiva, in small repeated doses, are occasionally useful, as is also the powdered cubebs in small doses. If these fail, the solution of corrosive sublimate, in doses of from twenty to thirty drops, with half a drachm of spirits of nitrous ether in barley-water, three times a-day, may be tried. These cases, taken altogether, are very bad, and not unfrequently they are caused by stone in the bladder or diseased prostate gland. Where the disease arises in consequence of gonorrhœa, the bladder may be injected with anodyne injections twice a-day, as one scruple of opium dissolved in a pint of decoction of marshmallows carefully strained: not more than one or two ounces should be injected at a time. Soda-water or potash-water will be useful as drinks; and where the bowels are relaxed, lime-water, diluted with milk, will fulfil the same intentions,—or effervescing saline draughts, with bicarbonate of potash (No. 28.)

BLADDER, IRRITABLE,

Is characterised by a frequent desire to pass urine,—the attempt to resist it producing great pain. It is a very distressing malady, and very difficult of relief. It is sometimes the consequence of repeated over-distension of the bladder, from the conventional restraints of society; at other times it results from gonorrhœa, excess of sexual intercourse, or from the secretion being acrimonious, caused by disorder of the kidney, and now and then it arises from nervousness only. Indulgence in the frequent expulsion of the urine tends to increase the malady; the propensity becomes more pressing, the bladder at length diminishes in size, and is perhaps thickened in its substance, and it will require great effort and perseverance on the part of the patient to restore it to anything like a healthy state. Irritable bladder is distinguished from calculous affections by the relief afforded by the expulsion of urine in the former, the pain in the latter being increased.

Treatment.—Where the secretion is faulty this must be remedied, but generally the urine is limpid, perhaps a little more abundant than usual. The organs should be kept tranquil, and the digestion scrupulously attended to; the diet should be nutritious but not stimulating, and the cold hip-bath, or sponging round the loins, and well rubbing after, should be employed every morning. Where the irritation is very distressing at night, a suppository of five grains of compound soap pill with opium should be applied up the rectum. Small doses of the extract of colchicum, combined with blue pill and extract of henbane (see form 10), should be taken at intervals every night for ten or twelve days, and then omitted for a time, the bowels being regulated by five grains of compound rhubarb pill or castor oil, as may be required. From fifteen to thirty drops of any of the diluted mineral acids may be given in a glass of water three times a-day for a month at a time. Moderate daily walking exercise should be taken in the open air, and mental occupation will be useful in calling off the attention from the malady, and thus gradually protracting or lengthening the intervals between the periods of expulsion of the urine. Change of scene, change of air, and tepid sea-bathing, will conduce to the same end.

Bleeding from the Nose.

Symptoms.—Bleeding at the nose sometimes comes on without any previous warnings; at other times it is preceded by pain, heaviness and swimming in the head, noise in the ears, flushing of the face, heat and itching at the nostrils, throbbing of the temporal arteries, quick pulse, &c.

Causes.—Sanguine and plethoric habit, peculiar weakness in the vessels of the part, a determination of a greater quantity of blood than ordinary to the head, &c.

The readiness with which the nose bleeds is familiar to every school-boy. A slight blow, brisk exercise, a fit of sneezing, or hot weather, is sufficient in many boys to make the nose bleed. In childhood and youth it is idiopathic, depending upon active congestion, and may be considered as nature's favourite mode of blood-letting at that period of life. In the aged it is symptomatic, and the result of passive or mechanical congestion. In some adult persons it happens periodically, and is habitual; and its suspension, rather than its occurrence, is a token of disease and of danger. In young women it is frequently vicarious of (*i. e.* is a substitute for) suspended menstruation; in men, of piles.

Treatment.—When critical in some disorders, and salutary in others, such as vertigo, headache, inflammation of the brain, inflammatory fever, or too great a determination of blood to the head, it should not be interfered with, unless it go to the length of weakening the patient; and in all cases it ought to be properly considered whether hæmorrhage from the nose is really a disease, or intended by nature to remove some other. Nor should it be suddenly stopped when it happens in good health, or to those who are full and plethoric; neither ought it to be checked too soon when it relieves any disagreeable pre-existing symptom. If it occur in elderly people, when the patient faints, or when it returns too frequently, it ought to be stopped as quickly as possible. To effect this, free exposure to cool air, the erect posture, with the head somewhat inclined backwards, is recommended.

In children, the nursery remedy is to slip a cold key next the skin down the child's back, or to keep the arms raised above the head for some time. The nose may be bathed with cold water, or vinegar and water; some may be sniffed up the nostrils, or the head and genitals immersed in the same. Some astringent wash (as a tea-spoonful of powdered alum dissolved in two table-spoonfuls of water) may be injected up the nostril with a syringe, or a plug of lint moistened with the wash may be passed into the bleeding nostril, for it is commonly only one that bleeds; a strong thread should be fastened tight round it, so that it may be withdrawn when requisite, and not slip in too far.

Where there is a frequent disposition to bleeding from the nose, saline purgatives should be given, the head kept cool, and a spare diet observed; and in persons of a full habit the occasional application of leeches behind the ears, and in other obstinate cases a blister to the back of the neck, have produced a good effect.

Boils.

A small inflammatory and very painful swelling immediately under the skin. It usually has a whitish conical centre, surrounded by a reddish inflamed base. A boil always suppurates, and sooner or later discharges its contents of pus and blood, and a grey fibrous mass, called a core, consisting of dead cellular membrane, which must come away before the abscess will heal. Boils mostly occur in young and vigorous persons, but now and then in the delicate; they are apt to recur in succession for weeks and months, and are very great plagues, and indicative of some derangement of the system.

Treatment.—Bathing with warm water and poulticing should be employed. Those who are obliged to pursue their usual occupations during the progress of a severe boil may apply a piece of lint moistened with oil over it, and secure it on with adhesive plaster, and as soon as the prominent part is soft, a cut with a knife or lancet through the skin which covers the core should be at once resorted to, as it relieves the pain by getting rid of the pressure of the skin, and allowing the escape of any fluid collected beneath, whilst at the same time it hastens the separation of the core. In persons of full habit, three or four grains of blue pill twice or thrice a week at night, followed by a dose of the compound senna mixture in the morning, should be taken, and a spare diet adopted. For those who are delicate, five to ten grains of rhubarb, with the same quantity of magnesia, in some aromatic water, every day or every other day, with a generous diet, and, in some cases, a course of sarsaparilla and tepid baths, will be advisable.

Bowels, Inflammation of.

This is one of the most dangerous and painful diseases to which mankind are liable, and should be always placed under the care of the physician without delay: the following hints as to the symptoms of this disease, and its treatment until his arrival, may, however, be useful.

Symptoms.—Severe pain over the whole abdomen, mostly preceded by rigor, and accompanied by thirst and hot skin. The pain is increased on pressure, so much so that even the weight of the bed-clothes cannot be borne, and the patient usually lies on the back, with the knees drawn up, but never writhes the body, although now and then the arms are thrown about: he breathes with the muscles of the chest only. The pain may be more acute at one part than another, or be lulled at intervals, but is never absent. The belly is usually tense and swollen, and there is a constant eructation of wind. There is nausea and vomiting, which is at first bilious, and sometimes most violent, even to the extent of bringing up the contents of the intestines. The bowels are generally obstinately costive, and now and then there is a total suppression of urine, or only a small quantity is passed, and that very high-coloured. The countenance is most anxious; the skin is hot; the pulse is strong and hard, but soon becomes small, wiry, and feeble; and there is extreme prostration of strength. In bad cases, as the disease advances, the belly becomes more distended, the pain increases, the pulse becomes weak, fluttering, and intermitting, there is constant hiccup, the skin is bedewed with a clammy sweat, the extremities grow cold, and the features are pinched and sharpened; the pain then ceases, black fetid stools are passed, and death follows from exhaustion.

When, on the other hand, the pain gradually diminishes and shifts its seat, the abdomen becoming less tense and tender, the vomiting occurring at more distant intervals, a warm equable moisture pervading the surface, and the bowels acting, the appearances are more favourable, and recovery may be hoped for.

It is of great importance not to mistake this for colic: in colic the pain is intermittent, and is relieved by pressure, and is not preceded by rigor, or accompanied by fever, and the patient writhes about in all directions. To treat colic as inflammation would not be prejudicial; but to treat inflammation as colic, and administer stimulants and carminatives, might lead to serious consequences.

Causes.—Irritating and indigestible food; a large quantity of cold water taken into the stomach; strangulated rupture (or hernia); colic; obstruction of the bowels from hardened fæces, or some solid bodies, as lumps of magnesia; or exposure to cold, particularly if immediately after a full meal.

Treatment.—The object must be to reduce the inflammatory action, by taking blood freely from the arm to the extent of sixteen or twenty ounces, followed up by the application of twelve or eighteen leeches to the abdomen, more particularly over the chief seat of pain, and encouraging the flow of blood by hot fomentations or a large poultice. This treatment it may be necessary to repeat, according to the urgency of the symptoms and the state of the patient. It is preferable to take a full bleeding at first, and to repeat it at moderate intervals of three or four hours, rather than at more protracted ones; leeching must also be repeated if requisite.

The exhibition of purgatives requires much consideration, lest they should increase the local irritation. Dr. Abercrombie says, "I confess my own impression distinctly to be, that the use of purgatives makes no part of the treatment in the early stages of inflammation of the bowels; on the contrary, they are rather likely to be hurtful, till the inflammation is subdued." (Watson's Lectures.)

Purgatives, if administered at all, should be of the mildest kind, as castor oil, or, what is preferable, small doses of Epsom salts in mint-water (as two drachms in one ounce of mint-water every four hours), which act as a febrifuge. The objection to purgatives taken into the stomach does not apply to enemas of warm water, of which four or five pints may be administered gradually up the bowel, and repeated in smaller quantities every two or three hours: they may dislodge any hardened fæces, and they act also as local fomentations. After the bleeding, calomel and opium should be given in such proportion as will prevent the purgative effect of the calomel, and relax the spasm;—as three grains of calomel and one grain of opium every two, three, or four hours. Sometimes the calomel will run off by the bowels, accompanied by severe griping, and this will counteract its anti-inflammatory and sedative effect; in which case the proportionate quantity of opium must be increased. Where the bowels continue obstinately costive, some practitioners advise a full dose of castor oil, to be given two hours after the third dose of calomel; continuing the exhibition of calomel and opium till the pain is subdued, or until it affects the gums. The chief reliance is to be placed on bleeding, leeching, fomentation, and enemas; to which the warm bath may be added. The inflammation being checked, and the lower bowels washed out, provided a feculent motion has not taken place, a laxative should be given, as castor oil or the compound senna mixture (No. 20), in repeated doses. In the event of symptoms of sinking, with a fluttering pulse, &c. supervening, the patient is to be upheld by wine and nourishment, and nutritive lavements of beef-tea, &c. should also be administered. If the bowels become relaxed, the compound chalk mixture with opium (No. 58) may be given; or an opiate enema administered (see Opiate Enema): wine and brandy must also be given, and external warmth applied by bottles of hot water to the feet, legs, sides, &c. The patient should never be given up in despair while due nourishment can be taken.

Brain, Inflammation of (*Phrenitis*)

Inflammation of the brain and its investing membranes is characterised by violent pain in the head, often preceded by shivering, and accompanied by a peculiar tightness across the forehead, redness of the eyes, flushed face, singing of the ears, preternatural sensibility to light and sound, with an appearance of restlessness or wildness in the countenance. The sleep is disturbed, or there is a total want of it, mostly succeeded by convulsions or furious delirium. There is a hot and dry skin, a frequent and hard pulse, a white tongue, nausea, vomiting, costive bowels, and sometimes retention of urine. The disease makes its approach in different ways before the more violent symptoms are ushered in. In one there will be an alteration in manner for several days, with some headache; in a second the first symptoms will be nausea and distressing vomiting, the smallest quantity of food being rejected by the stomach, and the bowels being obstinately costive; in a third it will commence with violent convulsion; and on other but more rare occasions, with loss of speech; but in whatever way it begins, the symptoms before mentioned succeed, with a degree of ardent fever. A remarkable quickness of hearing is a common symptom at the commencement, and also a throbbing in the temples; the mind at first seems to be occupied with some circumstance that had previously made a deep impression on it, and a state of sullen silence may be changed suddenly to a most boisterous and outrageous one. The stage of excitement may continue from a few hours to two or three days, when it will be followed by one of depression or exhaustion, which is characterised by extreme prostration of strength, low muttering, tremulousness, drowsiness, and stupor, from which the patient canont be roused, a dilated state of the pupil of the eye, which is apparently insensible to light, a horrible and ghastly countenance, trembling and twitching of the limbs, cold clammy sweats, and motions and urine passed involuntarily; or sometimes there is retention of urine.—These symptoms continuing, death follows.

Causes.—Any injury immediately affecting the head; violent exercise; intense study; hard drinking; extreme anger, grief, or anxiety; sudden changes of temperature; exposure to the rays of a vertical sun; suppressed eruptions, particularly cutaneous ones of the head, and those of small-pox, measles, and scarlatina; also the suppression of the habitual discharges, or irritating matter in the stomach. Phrenitis may also come on during the progress of any inflammatory disease.

It is distinguished from common fever by the head affection preceding the fever, the delirium being a primary, not a secondary affection; from mania, by the presence of fever and the rapidity of its course.

The unfavourable symptoms are constant trembling and starting of the tendons, suppression of urine, sleeplessness, constant spitting, or grinding of the teeth, terminating in stupor and insensibility.

The favourable symptoms are free perspiration, copious bleeding from the nose, a free discharge of urine, which lets fall a copious sediment, a natural diarrhœa, tranquil sleep, bleeding piles, and in women an excessive flow of the menses. The duration of the disease varies from one day to three weeks, sometimes terminating in gradual and complete recovery; if very protracted it occasionally ends in mania, or a degree of idiocy, which may or may not be permanent.

Treatment.—As this disease often proves fatal in a few days, the most active depletory measures must be had recourse to, which at its onset consist in diminishing the quantity of blood in the head, by lessening the force of the circulation; for which purpose copious blood-letting, purging, and cold applications to the head, are the means to be employed.

A full bleeding at once should be taken from the arm, as from twelve to twenty ounces, which may be followed by cupping, or the application of twelve or more leeches to the temples or back of the neck, and a full dose of calomel, as from five to ten grains, with as much jalap, should be given. The bladder should be looked to, and if the urine is retained it should be drawn off. The hair should be removed from the head, and cold water applied to it; or a bladder half filled with ice, broken in small pieces, and tied loosely, so that the head may lie upon it; or, in the event of delirium or coma, the cold water should be let fall on the head in a *small stream*, its effect being carefully watched: this may be done by raising the patient upright, and holding a large basin under the chin, cloths being placed around. Blisters and mustard poultices should be applied by way of revulsives, or counter-irritants to the calves of the legs. The bleeding must be repeated again and again, if necessary, according to the age and temperament of the patient, and the calomel continued in smaller doses every three or four hours, interposing a compound senna draught or purgative enemas.

Dr. Abercrombie says, "In all forms of the disease active purging appears to be the remedy from which we find the most satisfactory results: and although blood-letting is never to be neglected in the earlier stages of the disease, my own experience is, that more recoveries from head affections of the most alarming aspect take place under the use of very strong purging than under any other mode of treatment. In most of these cases, indeed, full and repeated bleeding had been previously employed, but without any apparent effect in arresting the symptoms." He has found the croton oil the most convenient medicine for this purpose; and he is disposed to regard mercury as being useful in affections of the brain chiefly in virtue of its purgative operation. (Watson's Lectures.)

Dr. Watson considers that if the calomel produces its specific effect on the gums a great change for the better will be perceived, although salivation might not have been directly intended. The regimen must be strictly antiphlogistic: toast-water, water, barley-water, rennet-whey, and such like, only being allowed: the most perfect tranquillity is to be preserved, and the apartment kept cool; the head somewhat elevated on a firm pillow, light very sparingly admitted, and the whole treatment soothing.

When the stage of excitement has passed by, and that of depression come on, provided the disease has yielded to the afore-mentioned treatment, great and most rigid caution is to be observed in gradually withdrawing the active measures and returning to a more liberal diet, lest the brain should be again disturbed. Should insensibility and general torpor remain, blisters may be beneficially applied to the nape of the neck or behind the ears, or, in extreme cases, a large blister to the top of the head. If there be an appearance of sinking from extreme prostration, the case may still not be quite hopeless: stimulants and light nourishment, as ammonia, beef-tea, wine and brandy, may be assiduously and cautiously given, and the patient carefully watched. In the event of sleeplessness, opium or morphia should be administered, as two grains of the acetate or muriate dissolved in four ounces of water, of which a fourth part may be given every two or three hours, till sleep is procured: or a grain, or even two, of either of the above preparations of morphia may with a much better prospect of success be sprinkled on a denuded surface (see Morphia). During convalescence, the diet must be carefully regulated, the bowels and bladder watched, and the head kept cool. A shower-bath with a moderate quantity of cold water, while the feet and legs are immersed in warm water, will be a useful auxiliary in restoring the health; also change of scene and change of air. Mental occupation of any kind must be very cautiously and gradually resumed.

Broken Bones.

Broken or fractured bones are among the most frequent and severe accidents that can befall persons, and should be placed as soon as possible under the care of a surgeon. As such aid is not always at hand, it may be well to give those instructions which are most essential for their immediate management.*

Mode of removal of persons injured by accidents.—Accidents are often rendered more severe and painful by the awkward manner in which, with the best intentions, the sufferer is carried, with the limbs dangling or rolling about.

"There is generally little difficulty in finding out a fracture of the leg, thigh, fore-arm, or upper-arm, especially if it be at or near the middle of the bone, because not merely is the sufferer incapable of lifting up the limb, but, in an attempt to do so, there will be an unnatural bending and grating motion at the broken part. In many cases of fracture the signs are not so evident, particularly when in the neighbourhood of a joint. A person who has broken his arm, either above or below the elbow, will find it least painful to place the fore-arm at a right angle with the upper arm, in a broad sling which will contain it from the elbow to the points of the fingers; and should he not have far to go, he will find that walking will cause much less pain and shaking of the broken part, than conveyance in a carriage of any kind. If the leg or thigh be broken, a hurdle, a door, or a shutter, covered with straw, coats, or blankets, may be converted into an excellent litter, which should be laid down by the sufferer's side, who should be gently and quickly lifted or slid upon it by just as many persons as are sufficient to raise him up a very little from the ground, and by no more, as the greater the number of assistants, the less likely are they to act together effectually. The shutter or hurdle should be carried by hand, two persons at each end taking hold of it, and all keeping step as they move along: if a couple of poles can be procured, and fixed across beneath each end of the hurdle, the bearers will carry with less fatigue both to themselves and the patient. If neither shutter nor hurdle can be obtained, no bad substitute will be made by fastening four stout poles together, and tying a blanket securely to them, so as to resemble the frame and sacking of a bedstead; and upon this the injured person can be laid. Hand-carriage in either of these ways is infinitely more easy than being moved in a coach or cart, for every jolt over an irregularity in the road produces motion in the broken bone, and a proportionate degree of pain. Before placing the person on the hurdle, shutter, or blanket, it is a good plan to bring the sound limb close to the broken one, and tie them firmly together with two or three handkerchiefs: this will give great support to the injured limb, and prevent any unnecessary movement. Besides this, a pillow or long pad of straw should be placed on the outside of the limb, to render it steady. In placing the limb, great care should always be taken to lay the broken part as nearly as possible in its natural direction; for if this be not attended to, but the broken part be left bent, it is not improbable that one or other end of the bone will be thrust through the skin, constituting a compound fracture, and thereby greatly increasing the mischief.

---

* The chief part of the following is taken, in some cases verbatim, from Mr. South's book on "Household Surgery."

The Treatment of fractures generally must have especial reference to the necessity of keeping the broken ends in contact, and as nearly as possible in their proper relative position, so that the curative process may proceed without interruption, and after it is completed, that the symmetry of the limb may be unaltered. A firm bed should be prepared, for which purpose a mattress is the most suitable, or a flat board sufficiently large should be placed under the feather-bed, in order to render it as firm as possible, and thus prevent the patient from sinking in, which is apt to occur when he is confined long to one position on a feather-bed,—a circumstance that materially interferes both with the comfort of the patient and healthy progress of the case.

"The materials necessary for the cure of broken bones are few and simple, and can be provided without difficulty; they consist only of linen bandages, about four fingers in breadth and half-a-dozen yards in length; of pads, which may be made of three or four layers of rug or blanket lightly quilted together, or pillows filled with tow, cocoa-nut fibres, chaff, or leaves; and of splints, either of deal boards four fingers wide, a quarter of an inch thick, and of length corresponding to that of the broken limb, or wheat-straws laid side by side, of the same extent and thickness, folded up in cloth and quilted, so as to prevent them moving about, or the fresh bark of trees." The pads should be a little wider and longer than the splints, in order that they may be twined over each end, and tacked so as to prevent them slipping.

Fractures may be treated without splints, as by using starched bandages, or by position simply. The *many-tailed bandage* is made of linen, and consists of a band of linen a yard long and from two to three inches wide, across which are placed transversely nine or ten pieces of the same width, and of sufficient length for their ends to overlap each other after surrounding the limb; each piece half covers the one next to it, and they are all sewn at the middle to the long band. To apply this bandage the limb is to be carefully raised to a sufficient height to pass the bandage under it, the long band being placed in a line corresponding with that of the limb; the ends of the cross-pieces are to be pulled out and laid smoothly and regularly on the bed, they are then to be turned over the limb alternately from below upwards, one over the other, till the whole limb is completely enveloped. The application of this bandage is much less fatiguing to the patient than that of a roller, and is particularly serviceable when dressings of any kind are required to a wound, as in compound fracture.

Mr. South says, " Broken limbs should not be " set," as it is called,—that is, bound up with roller, splints, and pads,—for the first three or four days, as for some hours after the accident the part continues to swell; if bandaged up tightly while this is going on, much unnecessary pain is produced; and if the bandages be not slackened, mortification may follow, which I have known to occur. It is best, then, at first only to lay the broken bone in as comfortable a posture as possible, and as nearly as can be in its natural direction; and it may be lightly bound to a single splint, merely for the purpose of keeping it steady. The arm, whether broken above or below the elbow, will lie most comfortably half bent upon a pillow; the thigh or leg will rest most easily upon the outer side with the knee bent. Broken ribs and broken collar-bones are exceptions to the general rule, and require immediate attention." Many surgeons place the limb in splints as soon as possible. There is always a disposition to spasmodic starting of the broken limb for some time after the accident, which tends to displace the bones and to increase the laceration and swelling of the soft parts; this may be prevented in great measure by the early steadying of the whole limb with splints, which need not be bound tightly, but so applied as to be loosened readily, if needful.

The management of broken bones consists in putting the displaced extremities in their natural situation, and in retaining them there. The consolidation is the work of nature, and is effected by a process for which a state of perfect rest is above all things requisite. The means employed for the reduction of a fracture are chiefly three, and are comprised in extension, counter-extension, and setting. Extension implies the pulling of the broken part in a direction from the trunk of the body, which is fixed by counter-extension in the opposite direction: in making extension, the hand should not grasp the extremity of the broken bone, but should be applied below the joint, and the extension continued steadily and gently till the ends are on a line, and, if possible, the one placed against the other. Thus in a fracture of the thigh the surgeon grasps the leg below the knee, not the lower part of the thigh. After a bone has been set it should not be disturbed for some time, and in general, if left quiet, nature will complete the cure; but as there is a continual tendency, from muscular action, to displacement of the bones, it is necessary to fix the broken limb so effectually by splints that it may retain its position for the whole time the curative process is going on: whenever there is a fracture of a lower limb, the patient should lie in bed until the union is complete, and care should be taken that the broken limb bear throughout its whole length equally and perpendicularly upon the surface on which it rests, and not be partially supported only.

Broken rib may arise from a fall or blow. There will be a stitch, or pricking sensation, at the place of the injury, and by putting the hand on the part while the sufferer is breathing there will be a grating felt.

Treatment.—A flannel or linen roller, about six yards in length and two hands in breadth, should be firmly bound round the chest, so as to prevent any motion of the ribs in breathing, which during the cure must be performed by the diaphragm, or midriff, alone. The end of the roller should be fastened by sewing, rather than by pins, as the latter are apt to slip; and it will be better if all the turns of the roller be sewn together, which will render the bandage more secure and less likely to require re-rolling. If well put on, the bandage rarely needs to be renewed more than twice in the month during which it is advisable that it should be worn.

"It is customary to bleed a person at once who has broken one or more ribs,—a practice which should be avoided, unless the patient complains of pain, or is troubled with a cough, when a full bleeding may be resorted to with benefit, which perhaps it may be necessary to repeat. The bowels should be cleared by a purgative; and twenty drops of antimonial wine, and a tea-spoonful of syrup of poppies, in a glass of water, given three or four times a day. After a few days the patient will be more comfortable sitting up than lying in bed. If the ribs be broken on both sides of the chest, or if the breast-bone which runs from the bottom of the neck to the pit of the stomach be broken, it is a very dangerous accident, and no bandage should be applied, as it will do mischief; but the person must be kept as quiet as possible.

"Broken collar-bone.—As the collar-bone keeps the shoulders back, when it is broken the shoulder of the injured part falls forward, pressing the broken ends over one another. The mode of cure is to keep the shoulders back artificially, and to support the arm till the bone unites. A pad, the size of two fists, should be placed high up in the hollow of the arm-pit; for which purpose a large folded stocking answers very well: it should have a tape at each end, one passing behind the other over the chest, and tied on the opposite side of the neck, with a pad under to prevent it from chafing. A bandage is next to be turned once or twice round the arm immediately above the elbow, and its two ends carried round the chest, one before and the other behind, and tied so as to keep the elbow close to the side. The elbow and fore-arm are then to be put in a short sling, which lifts up the shoulder, and should be tied on the sound side of the neck: all deformity then disappears, and the bone is set. The bandages should be thus worn for a month.

"Broken arm above the elbow.—The pads and splints must be fitted on the sound arm before placing them on the injured one: four of each will be required, and two long rollers. The immediate swelling after the accident having subsided, the limb must be placed with the fore-arm bent at right angles with the upper arm, and the hand and arm slightly swathed in the roller, the turns of which should overlap each other, and be continued a little above the elbow: the object of this is to prevent the swelling which generally follows the application of the splints. The second roller is then to be wound twice or thrice round the arm above the elbow; then the first splint with the pad tacked on is to be placed in front of the upper arm, but not quite down to the bend of the elbow; two or three turns of the roller made round it, and next the back splint applied from the shoulder to the elbow, and the roller carried round it twice or thrice; the third splint is to be placed on the inside, the upper part close to the arm-pit; and lastly, the fourth splint on the outside. The roller is then to be wound round the splints till the arm is swathed from the shoulder to the elbow. A short sling, which must only support the hand and wrist, is to be put round the neck. By this means, the elbow being allowed to hang, will keep the broken portions in place. The splints do not require to be touched for ten days or a fortnight, and then are to be re-applied in the same manner, and must be worn a month of five weeks. It is not necessary to keep the patient in bed; indeed it is advisable that he should be kept up, as the broken bone keeps its position better.

"Where splints are not procurable, after rolling the hand and fore-arm, a second roller, well soaked in gum water or stiff starch, may be swathed round the upper arm from the elbow to the arm-pit. The limb must then be carefully laid on a pillow, in as nearly as possible its natural position, and in the course of from twelve to twenty-four hours the gum or starch dries, and a tough, unyielding, well-fitting case encloses the arm, and rarely requires being meddled with till completely removed at the end of a month."

BROKEN FINGERS.—A piece of stiff wood or pasteboard, as wide and as long as the fingers, is to be applied on the same side as the palm of the hand, and the fingers laid straight, and bound upon it with a roller an inch wide. The hand should be kept in a sling for three weeks or a month, and no attempt made to use it till after that time. The broken finger remains stiff long after the bone has become well united. It is a good plan, in order to render the joints supple, to immerse the hand for half an hour daily in warm grains or warm water, and afterwards gently bend the fingers backwards and forwards as far as they can be moved without pain.

BROKEN THIGH.—If this accident happens at any part a little distant from the hip- or knee-joint, it will be easily detected by the unnatural bending at the seat of the injury, and by the person being unable to lift up the leg below the broken part, as well as his not liking to attempt it on account of the pain produced by the bone pushing into the flesh.

The management of the broken thigh with splints is various, as far as regards both the number of splints and position of the limb. In most cases the straight position, with the limb resting on the heel, will answer best, and be least irksome to the patient; but sometimes it is necessary to place the limb on a double-inclined plane, upon the summit of which the ham rests; and therefore the limb is bent, though still resting on the heel. In all broken thighs, to prevent inconvenient swelling it is especially important that the whole limb should be rolled, beginning from the toes and continuing to above the knee, the upper part being supplied by the many-tailed bandage; and at this stage the limb must be set. One person should hold the body of the sufferer close to the hip, while a second, grasping the leg just above the ankle, by a gentle and steady pull straightens the injured limb to the same length as the sound one, the broken end of the bones being by this means brought into apposition. The thigh being gently raised from the bed, by a hand put under the knee, the many-tailed bandage is to be carefully placed under it, and firmly applied by lapping one tail over the other, beginning from the lower end and ascending to the top (or the roller may be passed round again and again) till the whole limb is bandaged to the hip. If rollers are used it is better to have several, of from four to six yards in length, which must be tacked together as they are required.

The splints being well padded, the longer one is to be placed from above the hip to below the outer ankle, the shorter one from the upper part of the thigh (close to the fork) to below the inner ankle. A roller is then to be carefully applied over the splints and limb, each succeeding turn of the roller overlapping the other, from the toes to the top of the thigh, and there tacking the roller firmly by sewing. The limb must then be gently laid on the mattress, with the toes upwards, and, to prevent the foot rolling to either side, a bandage should be passed once or twice round the ankle, crossed on the instep, passed in the same manner round the foot, tied on the instep, and carried on and fastened to the rails on each side of the bed. If the bandaging be carefully managed, and the patient keep tolerably quiet, it will not require to be meddled with for two or three weeks, when it must be re-applied as before; and when the roller is being removed from the foot, care should be taken that the foot is held in its proper position, and that it does not roll to either side or be otherwise disturbed. It sometimes happens for the first few days after the broken limb has been set, that there will be spasm in the muscles of the thigh, which pulls the lower broken end over the upper end, and, by thrusting its sharp points into the soft parts, keeps up the spasm. In addition to the pain thus caused, the limb will be shortened,—a circumstance, however, which may occur without any painful spasm. This is to be obviated by means of a weight suspended to the foot, which is easily done by passing a bandage once or twice round the ankle, bringing it across the instep to the sole of the foot, and slinging a brick or some weight to it; and a piece of board, four inches high, must be screwed to the bed foot, so as to form a pulley, over which the bandage, with the weight attached, may run and play. Generally the weight will not be required after a few days, as the muscles by that time will become tired, and as soon as this is the case the weight may be removed.

Should the accident happen under circumstances where the patient has to be moved about, it may be of advantage to use four splints. The two side ones, as before mentioned, having been put on (but not rolled over), a third splint, well padded, is to be placed on the back part of the limb, extending from the share or sitting bone (which may be easily felt where the buttock joins the top of the thigh) to a few inches above the heel, and the end of the splint should be hollowed out so as to prevent its wounding the skin; a fourth is to be applied in front, from the top of the thigh to a short distance above the ankle. At the part where the splint lies on the knee-cap three or four deep saw-streaks must be made across the splint with a saw, so that the splint will bend and accommodate itself to the projection of the knee-pan. The splints may be kept in position during their application by a handkerchief or two. These being adjusted, the limb is to be rolled over from the ankle to the top of the thigh, not drawing the roller too tight over the knee-pan: in this way the limb is enclosed in a box, which cannot be displaced without violence.

In some cases the broken thigh may be laid on a pillow on its outer side, in the easiest position for the patient, and (after putting on the many-tailed bandage, &c.) a splint, made of bark or any firm material, applied on the outer side from above the hip to below the knee, and a second on the inside from the groin to below the knee, and fastened on with two or three looped pieces of roller.

Broken knee-cap or knee-pan.—The knee is very liable to be fractured by a blow, or torn across in falls, where the individual, endeavouring to save himself, violently exerts the muscles of the thigh. When lifted up he is unable to stand on the injured leg; and on examination, a hollow or depression will be found, in which the finger will sink, and above and below this pit will be the two portions of bone into which the knee-pan has been divided.

Treatment.—The two portions scarcely ever unite by bony union. The patient must be placed in bed, with his head and body raised, so as to rest in a half-sitting posture, the thigh and leg being kept in the same straight line, with the foot and leg raised as high as can be conveniently borne, so that the whole limb may be bent upon the body at the hip-joint. The patient is to be kept in this posture by a sling, the upper part of which passes round the neck, and the lower round his foot and heel. In this manner only can the broken pieces of bone be brought nearer together, for the muscles of the thigh draw up the upper piece, and the lower piece is so firmly attached to the shin-bone that it cannot be moved without moving that bone. By these means the bones are brought somewhat nearer each other; and at about the end of a week, when the swelling has subsided, a circular strap, or two or three turns of a roller, may be passed round the thigh, just above the upper piece of bone, sufficiently tight to prevent its slipping over the edge of the bone. Another strap or roller is wrapped round the leg directly beneath the lower portion of bone. The two circular bandages are now made to approach each other by tapes passed from one to the other, and tied on each side of the knee, the upper one drawing down with it the upper portion of bone. The patient is to be kept in this position with the bandages (which will require occasionally adjusting) for about a month; after that time no more benefit will be obtained for them.

On first getting up, the patient will not be able to bend his knee or walk, or even support himself: this is in consequence of the stretching of the substance which unites the two portions of the broken bone. If this stretching be great, which it occasionally is to the extent of several inches, the person will be incapable of standing, from the muscles which brace the leg to the thigh becoming lax by the lengthening of the new substance, thus allowing the upper part of the knee-cap to which they are fixed to rise above its proper place. This laxity is to be overcome by compelling them to shorten themselves by the following proceeding: The patient must sit on a high table, with his leg hanging over just clear of the knee, and then swing it backwards and forwards till he can raise it straight with his thigh. When he is able to do this a pound weight should be fastened to the foot, and he should proceed in the same way, gradually increasing the weight from day to day. Practice in this way for a week or two will put the muscles to rights, and enable them to brace the knee properly, so as to support the body and render the individual capable of walking safely.

Broken leg.—The leg has two bones. The great bone of the leg can be easily felt from the knee to the ankle-joint, being little covered with flesh; its front surface is commonly called the shin. The smaller bone is on the outer side, but being well covered by the soft parts, it cannot be so readily felt, except at the outside of the ankle, and a little above it.

When both bones are broken it is for the most part sufficiently evident; but one only of the bones may be broken without the other being hurt. If the small bone be broken, although there will be great tenderness on pressure, and considerable pain on attempting to stand or walk, yet it will in general be almost impossible for any one, except a medical man, to determine that the bone is broken. This is not of vast importance, because if the sufferer only lie still, the broken bone will unite very satisfactorily, as the shin-bone itself forms the best splint that can be provided, and keeps the small bone in its place. But if the great bone only be broken, there is generally irregularity at the broken part, and a little movement may be there felt, so that the accident will be discovered. Even in this case the smaller bone serves as a good splint, and if the person only keep the limb rested for a time, there will be no absolute necessity for splint or bandage; still it is better to employ them.

Treatment.—In most cases a broken leg may be managed very well by merely rolling it from the middle of the foot to the knee in a long bandage well soaked in thick starch or gum-water, of which the latter is preferable. It will be advisable to wait for a few days until the swelling shall have gone down; keeping the leg in the meantime in a proper position on a pillow, with the knee half bent, and the toes a little raised by a pad placed beneath the outside of the foot near the little toe. Before putting on the roller, the foot and leg must be wrapped smoothly in a double fold of lint, otherwise the gum will stick to the hairs, and there will be much difficulty in removing the roller afterwards. This done, the leg must be gently raised and supported by two persons, one of whom holds it above the broken part, and the other below, with the hands round the ankle, at the same time making a gentle pull to prevent the broken ends of the bone overlapping. The roller is then to be applied, first over the foot, carrying it on over the instep and ankle to the leg up to the knee, taking care that each turn of the roller half overlaps the one just made: having reached the knee, the bandage is to be rolled down again over the foot, and again upwards to the knee. The limb is to be replaced on the pillow, and the foot supported at such a height that the tip of the great toe and knee-pan are on the same level. In the course of twenty-four hours the roller will become dry, and a firm-fitting case formed on the leg, in which it will be immovable. About the third day the bandage becomes hard and firm, when the patient may get up and walk about. Sometimes it is necessary to take the bandage off and re-roll it, should it pinch anywhere, or if, by shrinking of the soft parts, it becomes very loose; otherwise it does not usually require to be interfered with till the end of a month, when it may be entirely removed. Where splints are employed, two will be required, both of which should reach from above the knee to below the ankle; they should be well padded, and so guarded as only to press at the joints. For the first few days after any of these simple fractures the patient should be kept on a spare diet, and if he be young and of full habit, or if there be considerable swelling of the limb, accompanied with increased heat and restlessness, ten or twelve ounces of blood may be taken from the arm. But after a few days, when the system is tranquillised, the ordinary diet, or even a more generous one, may be requisite. The bowels should be kept regulated by an aperient pill, or the compound senna mixture. When the bowels are relieved, a bed-pan should be introduced under the patient, that the fractured part may be disturbed as little as possible; or a fracture-bed, with an aperture in the bottom (manufactured by Chapman, 8, Denmark Street, Soho Square), may be used.

Compound fractures are those in which there is a wound in the flesh communicating with the broken bone. Sometimes the bones are exposed, and even protrude through the skin, rendering it necessary to remove a portion of bone before the limb can be set. The danger in these cases is immeasurably great, and requires the aid of a skilful surgeon; but a few directions as to their management, till medical aid can be obtained, may be desirable.

Treatment.—As to setting and bandaging, the same method is to be pursued as in simple fractures, and we should endeavour to heal the wound as speedily as possible. In most cases the edges are to be brought together by strips of adhesive plaster, over which the many-tailed bandage is to be applied, which should be kept moist by squeezing a sponge of water over it several times during the day, in order to control the heat and inflammation. The bed-clothes should be kept from the fractured part by means of a fracture-cradle (which may be easily made with two light pieces of wood, each about four inches deep and about two feet long, to be connected together by three or four half-circular pieces of hoop, the whole forming an arched covering and defender for the broken limb), or by placing a firm bolster on each side: the weight of the bed-clothes is thus kept off, and free circulation of air is permitted; otherwise the limb will be kept in a steam-bath, and be damaged rather than benefited. If fortunately the wound heals, the accident will go on favourably. Unhappily this does not frequently take place, but the patient after a few days becomes hot, thirsty, and restless, with headache and occasional shiverings: delirium ensues, and the wound suppurates. At first, only a bloody offensive sort of discharge takes place; at length matter forms, and the wound has to be healed up by granulations,—that is, by new flesh filling up the gap formed by the wound before the broken bone can unite This perhaps may progress satisfactorily, but it is too often a very tedious process, during which the patient is worn out, and those of advanced age and previously broken-down health are likely to die or lose their limb. Directly the constitutional disturbance begins, the wound must be poulticed, to encourage the formation of matter, as its appearance and production, if of a good sort, is a favourable symptom. The poultice should be continued until the wound is filled up with new flesh, or until it has nearly or entirely healed.

With regard to medical treatment: during the early inflammatory stage, where the patient is strong, an occasional dose of calomel and saline purgatives should be given, and a spare diet observed; in the latter stage, when the patient becomes enfeebled from protracted disease, a generous diet, with wine and tonics, should be administered.

Bronchitis.

This disease is inflammation of the membrane lining the air-passages of the lungs, or bronchial tubes (which membrane is the seat of all coughs), confined to one part, or pervading the whole tube. Bronchitis may be acute or chronic; the cough dry, mucous, or chronic (or winter) cough.

Acute bronchitis, or severe cough, is mostly preceded, for a longer or shorter period, by catarrh, or cold (see Catarrh), succeeded by fever, difficulty of breathing, constriction and tightness or oppression of the whole chest, and diffused muscular pain, not at first increased by inspiration: the air-passages are dry, and the cough painful. At length there is a glairy secretion, extremely tenacious and frothy, and expectorated with difficulty, which gradually becomes more opaque, or purulent, and is now and then spotted with blood. The fever, cough, anxiety, and oppression of breathing, are aggravated towards night; the expectoration is more copious, and the exhausting cough more severe in the morning. As the expectoration becomes more opaque and party-coloured, it is spit up with more freedom, and there is some remission in the acute symptoms. Occasionally this state of things is interrupted by the cough again becoming tighter, and the secretion more viscid and tenacious, showing a return of the inflammatory state. In favourable cases, the severity of the disease abates between the fifth and eighth day, the fever and difficulty of breathing subside, the expectoration is more easily accomplished, and the patient gradually recovers; or now and then it runs into a chronic form. In unfavourable cases, the fever and difficulty of breathing increase, the lips and cheeks become purple, the rest of the face more pallid, with a most anxious expression of countenance; the fingers are blue; the mind wandering and restless; and profuse clammy sweats ensue, followed by death from want of oxygenation of the blood, the air-passages becoming blocked up from the viscid secretion.

Causes.—The same as in catarrh, or from the application of cold air directly to the mucous lining of the lungs; from exposure to a sudden change of temperature, as in passing from a heated room into the cold air, and too frequently with the mouth open, the air being thus admitted to the lungs colder than when warmed in its longer passage through the nostrils.

Treatment.—In the severe forms of this disease the patient should at once be confided to medical care. Where this cannot be obtained, from six to twelve leeches (according to the strength and age of the individual) should be applied to the throat and chest; this failing to give relief, the same number of leeches may be applied between the shoulders. The bowels should be cleared out by the exhibition of three or five grains of calomel, followed by a scruple of compound powder of jalap, or a compound senna draught (No. 20), after which a dose of saline mixture (Nos. 111, 112) should be given every four hours, with antimonial wine in nauseating doses in the more robust; in the delicate and younger persons, ipecacuanha wine is better; hot bran-poultices, mustard-poultices, or blisters, should be applied to the chest, throat, and between the shoulders. Either of the mixtures (Nos. 81, 82, 83) may be given to relieve the cough; where the expectoration is difficult, the alkaline (No. 83) will be more useful, as it will tend to diminish the viscidity of the phlegm, and so enable the patient to get rid of it with more facility, as will also the inhalation of the vapour of tepid water. In the event of the patient sinking or becoming extremely prostrate, the carbonate of ammonia should be had recourse to, of which five grains may be given in three tablespoonfuls of water or camphor mixture every four or six hours, with three or four drops of laudanum. To procure rest at night, opiates, during the acute stage, may be administered with caution; but laudanum in full doses should on no account be given by non-medical men. From five to six grains of Dover's powder, or half a drachm of tincture of henbane, or one drachm of compound tincture of camphor, taken at night in a dose of the saline mixture, and the use of a mustard foot-bath, will often have a soothing effect. Inhaling the vapour of a scruple of powdered hemlock, or half a drachm of tincture of henbane thrown on a pint of hot water, will act as an anodyne.

As the severity of the disease diminishes, the nauseating remedies should be suspended, and the cough mixture (No. 80), and some tonic—as the light bitter infusions with the mineral acids—may be beneficially given. (No. 124.)

Confinement to bed is essential during the severe symptoms, and the temperature of the apartment should be carefully regulated; it should be warm, but not hot, and well ventilated. The diet in the commencement should be fluid only; latterly it may be more nutritious, but still light. A return to the usual habits should be conducted with caution, and cold damp weather and easterly winds be for some time particularly guarded against, by observing early hours and wearing warm clothing.

CHRONIC BRONCHITIS; *Winter Cough, Chronic Mucous Cough.*—This is a very common form of chest affection. It is sometimes preceded by the acute form, at other times it commences with catarrh (see Cold, &c.), and will last a month or two; in other cases, again, it will come on with the first accession of cold weather in winter, and will continue till spring.

Symptoms.—Difficulty of breathing, accompanied by feverishness and frontal headache, and a sense of rawness or soreness of some part of the air-tubes, with a slight cough, and greater or less expectoration, of various degrees of consistence: at one time it will be a thin, watery mucus, bland or acrid; at others thick, ropy, and tenacious, or purulent; occasionally it is of a dirty greyish or greenish hue, from an admixture of black matter; generally it is free from smell, but now and then extremely fetid; it varies in quantity from a few ounces to several pints daily. The pulse is commonly small and feeble, and the patient debilitated, and then expectoration is performed with difficulty, and the cough aggravated; under these circumstances suffocation may ensue, from blocking up of the bronchial tubes. The disease is always accompanied by flatulence.

"Frequently recurring catarrhal affections, besides generating a state of chronic derangement of the mucous lining of the lungs, have a necessary tendency to produce other bad effects. Difficulty of breathing is an ordinary attendant on chronic bronchitis; the vesicular structure, enfeebled by disease, loses its elasticity, and hence the act of respiration is performed weakly, and with considerable difficulty. In addition to this, the strain thrown on the air-cells and passages gives rise to distension and dilatation of the bronchial tubes" (Graves).

An attack of this kind ought never to be allowed to establish itself, if it can possibly be prevented: too often more formidable chest diseases are called into activity by neglected colds; therefore no time should be lost in attempting to ward off the mischief. This object is best fulfilled by the production of a free action of the skin, promoting a regular and open state of the bowels, and tranquillising the bronchial irritation. Where it is procurable, a vapour-bath generally will have a most beneficial effect; otherwise, a warm foot-bath and a warm bed; also, a saline draught with antimony (No. 113) should be taken at bed-time, and diluent drinks—as barley-water, weak white wine whey—should be sipped freely; a mild aperient, as a scruple of rhubarb and the same quantity of magnesia, or a seidlitz powder, may be taken in the morning. It will be better to keep in the house (if not in bed), and to repeat the draught every night for two or three successive nights. To quiet the cough, the mixtures (Nos. 81, 82, 83) should be had recourse to. If any feverishness prevail, the same mode of treatment, with the exception of bleeding or leeching, should be pursued as in acute bronchitis; and the application of a small blister to the upper part of the chest, or between the shoulders, or friction with the tartar emetic solution or liniment of cantharides, as counter-irritants, will be advisable; and, for the most part, a light, nutritious diet should be taken; and this will be the more needed if chronic bronchitis supervenes on the acute form. This disorder may occur at any age, but in old people it is always to be regarded with serious attention. In youth an attack would not be considered as alarming; but a similar one in those of advanced age may become suddenly fatal, from want of power to spit up the viscid tough phlegm with which the air-passages become blocked up. The difficulty of breathing is very great, particularly in elderly people, who often cannot breathe except in the upright posture. There are wheezing, cough, abundant mucous secretion, drowsiness, extreme debility, and coldness of the hands and feet, both of which are often discoloured or blue from languid circulation. Cases of this kind, from what is called a cold, will occur winter after winter, leaving a slight cough, or disappearing entirely in summer; at each return of winter the disease being more aggravated. The secretion in some cases is more abundant, and is spit up to the amount of several pints daily, without causing much apparent wasting of the frame. Chronic bronchitis is sometimes as surely and progressively fatal as consumption of the lungs, to which it bears a strong resemblance; but provided there is no organic disease, it is in most cases curable in the growing or middle-aged. After repeated winter attacks, old people often expire slowly, without much apparent suffering, solely from suffocation by the accumulated mucus.

Treatment.—This must be regulated according to the prevailing symptoms; and as feebleness more commonly prevails, the diet should be nutritious, and early and regular hours observed; counter-irritants should be applied to the chest and between the shoulders, as mustard-poultices, and occasionally blisters, and a Burgundy pitch plaster worn between the shoulders. Dr. Buchan says, "I have ordered this" (the pitch plaster) "in most obstinate coughs, in many different constitutions, without ever knowing it fail to give relief, unless where there were evident signs of ulcer in the lungs." Warm stimulating expectorants, such as squills and ammoniacum with opium and henbane (Nos. 75, 76), Dutch drops (No. 53), compound tincture of Benjamin, turpentine, and copaiba are useful; and—in cases of depression—carbonate of ammonia with laudanum (Nos. 102, 103), tonics, and preparations of steel, as compound steel mixture, given in doses of one or two drachms, in mint-water, twice or thrice a-day. Where the secretion is abundant, or expectorated with difficulty, an occasional emetic is pre-eminently useful. The bowels should be kept in a soluble state, and aperients in combination with sulphur are recommended (No. 33):* to assist the expectoration, and relieve the difficulty of breathing, the steam of warm water, by itself, or with the tincture of henbane, may be inhaled. The vapour of tar may be diffused about the apartment, or that of spirits of turpentine, by putting a tablespoonful on a teacupful of hot water, poured in a flat dish.

BRONCHOCELE, GOITRE, DERBYSHIRE NECK.

Bronchocele is a tumour in front of the neck, under the skin, and over the wind-pipe, and consists in an enlargement of the thyroid gland.

It is a very common disorder in Derbyshire, but its occurrence is by no means frequent in other parts of Great Britain or in Ireland. Among the inhabitants of the Alps, and other mountainous countries bordering thereon, the Valais, the Valteline, at Lucerne, Berne, Friburg, in some parts of Piedmont, in the valleys of Savoy, and at Milan, it is a disease which is very often met with, and is there known by the name of goître. It is associated with cretinism† in the lower gorges and ravines, but as we ascend the neighbouring mountains cretinism disappears, and goître only is observed. It is usually a soft, smooth, elastic tumour, which is neither painful, tender, nor discoloured: sometimes it is lobulated or irregular, the lobes of which the gland is composed not being all equally enlarged. The right side is frequently larger than the left. Unless the tumour is very large it follows all the motions of the larynx. Its growth is slow at first, but after a time more rapid, when it usually becomes flabby and pendulous (though sometimes of schirrous hardness, or bony), occasionally surrounding all the front and sides of the neck like a thick collar. The thyroid gland may swell from inflammation, but then it will be hard, tender, painful, and red. Bronchocele has no malignant quality, but it is always a deformity; and by its weight, when it attains a large size, its pressure on the surrounding parts, as the wind-pipe and large blood-vessels, may cause great distress and suffering, and even death itself.

---

* The celebrated Hoffmann was in the habit of adding sulphur to his cough prescriptions in all cases of chronic bronchitis in the aged and debilitated.

† Cretinism is a state of idiocy, commonly accompanied by goître. Wherever the former is endemic, bronchocele also exists, but the latter may prevail where there are no cretins. Cretinism is confined within much more limited bounds than goître. It is usually met with in valleys which are nearly surrounded by high and steep rocks, where there is but little circulation of air, and where the inhabitants are

Causes.—These are very obscure, but the disease is mostly attributed to drinking water impregnated with limestone; though lately it has been suggested that the absence of iodine in water will give rise to it. It is more prevalent in females than males, and in those of an unhealthy constitution, and is frequently connected with some irregularity or disorder in the uterine functions; and the tumour has been observed to enlarge temporarily during the menstrual period. It is not common in this country before the age of puberty, and is said to be hereditary; there are instances of children being born with it.

Treatment.—Where it prevails in the district, the removal to another is advisable. There have been a variety of remedies in repute at different times for the cure of this complaint. Those chiefly to be relied on

---

exposed to the direct rays of the sun, to the reflection of them from the rocks, and to the effluvia of marshes, and among those who reside in dirty, close, hot, and damp cottages or cabins. It occurs in the Pyrenees as well as in the Alps, in the mountains of Syria, in the hilly parts of China, and in the Himalayan regions. The children that are taken away from the low valleys, and carried up when young into the high grounds, escape the disease, or even get the better of it, if removed soon enough.

are the burnt sponge, preparations of iodine and of iron. Burnt sponge should be given in doses of ten, fifteen, or twenty grains three times a day; it is better made into the farm of a lozenge, with sugar and mucilage of gum arabic, the lozenge being allowed to dissolve slowly on the tongue, and the saliva swallowed. The want of the uniform success of this remedy led to the administration of iodine, which was discovered to be the active principle contained in the burnt sponge: the latter is, however, still preferred by many persons, and its failure has been attributed to its adulteration with charcoal. The best preparation of iodine for this disease is the compound solution of iodide of potash of the London Pharmacopœia, of which from one to four drachms may be given at a dose in the following form:—Take of the compound solution of the iodide ot potash half an ounce; cinnamon-water and water, of each two ounces; mix; take a fourth part twice a day. The dose of the solution may be gradually increased, and where there is want of appetite, some of the bitter infusions may be substituted for the water. In pale females, who are irregular, the syrup of iodide of iron, in doses of half a drachm twice a day, increased gradually to one drachm, may be given in lieu of iodide of potash. The tumour also may be rubbed with some stimulating liniment, as the compound mercurial liniment, or the ointment of iodide of potash, or a strong solution of salt and water; or if the skin becomes abraded or irritated, a dilute solution of eau de Cologne and water. The patient should always be watched during the exhibition of iodine, as in some constitutions it produces poisonous effects, characterised by nausea, headache, extreme languor, vomiting, and purging; in which case some mild stimulant should be given, as a teaspoonful or two of sal-volatile in a glass of water, or the antispasmodic mixture (No. 49), followed by a mild purgative of rhubarb and magnesia, and the iodine of course left off. In individuals who are very susceptible under the internal use of iodine, it may be applied locally in the form of the ointment, half-a-drachm twice a-day; or the tumour may be brushed with the tincture of iodine daily, and then the alkaline solution (No. 15) given.

In all cases the general health should be attended to, the bowels kept regular, and a nutritive diet allowed. When both external and internal remedies fail in dispersing the tumour, surgical measures have been adopted to remove it. These are,—first, destroying it by the application of caustic; this is a dangerous, as well as painful and tedious mode: secondly, by the introduction of one or more setons in the tumour; this is the most effectual mode of accomplishing it, and is attended with the least risk: thirdly, by tying the thyroid arteries, thus cutting off the supply of blood by which the tumour is fed; this operation may be performed in most cases perhaps with safety, but it appears to have been attended with very varied success: fourthly, by the removal of the tumour by excision; this is the most hazardous undertaking of all, and has rarely succeeded.

"There is not one of these operations, of which the average results have been sufficiently prosperous to warrant its repetition, except in cases where life is put in jeopardy or made miserable by the swelling, and where other methods, particularly the treatment by iodine, have been tried and have failed. One exception, perhaps, I should here make,—the tumour sometimes evidently contains a quantity of fluid, either in one of its enlarged cells, or in a distinct cyst: now the cell or cyst may in such case be punctured and the fluid let out, without much risk. This was done in one case by my colleague, Mr. Arnott: he kept the orifice open, and the cyst shrank, and was at last obliterated, and the woman was much gratified by this diminution of her load."—*Watson's Lectures.*

Bruises and Contusions

Are occasioned by external violence, and may be simple, or complicated with a wound of the skin. The first effect of a bruise is a swelling of the part and effusion of blood from bursting of the small vessels under the skin: on the head this is evident from the puffy tumour which often rises immediately after the blow. The blood poured out does not remain in one spot, but diffuses itself according to the severity and extent of the bruise among the surrounding textures, discolouring the skin, first black, then blue, green, yellow, &c. until, gradually fading, the skin recovers its natural colour by the blood being absorbed. Sometimes, when much blood has been thrown out from the violence of the contusion, it is not thus removed, but breaks through the skin, forming an imperfect abscess, which is troublesome to heal, or the part may mortify and slough. When the contusion is on the belly or loins, enquiry should be made whether there is an appearance of blood in the urine or stools, which should be treated accordingly (see Bloody Urine, and Blood from the Bowels, in the Index).

Treatment.—The most ready application is lint or linen moistened with cold water or Goulard lotion, the part being kept quiet. If the contusion be large, it may be enveloped in a bread-and-water poultice, tepid or cold, as is most agreeable to the patient: this relaxes the skin, so that it yields more readily to the pressure of the blood beneath, and thus diminishes the pain. Should the bruise be severe, or in the neighbourhood of a joint, six, twelve, or eighteen leeches may be applied over the part, or some blood drawn by cupping, and afterwards a tepid poultice put on and continued till the pain is relieved. When the heat and inflammation have subsided, friction with soap liniment, and the application of a roller, will remove any remaining discoloration of the skin and support the part.

"If the bruised part be the knee or the ankle, walking should not be attempted till it can be performed without pain, and at first should not be persisted in but for a very short time, and not to fatigue the part. Inattention to this point often lays the foundation for serious mischief in these joints."—*South.*

Jammed Fingers, by shutting a door or drawer, is a most severe form of bruise, as the door or drawer is usually closed with violence; now and then there is a wound of the skin, or the nail is torn half off. Few persons have escaped this accident, and it is therefore almost needless to mention how excruciating is the agony for a few minutes. If the end only of the finger be nipped, the nail very soon blackens, in consequence of the blood escaping from the broken small vessels, and being pent up beneath the unyielding nail, which it separates from its attachment beneath, causing pain for a few days till the sensitive parts become accustomed to its intrusion. The detached part of the nail dies, and, according to the extent of the mischief, the whole nail may die, and will be replaced by a portion of nail or an entirely new one, which pushes underneath it from the root at the quick, and very gradually thrusts the dead nail on to the tip of the finger, till it is completely loosened and thrown off. In general, this process, after the first few days' pain, runs on without much inconvenience; but sometimes the injury is so great, that inflammation of the nail-joint of the finger comes on, accompanied with severe pain; matter is formed, and the whole nail is quickly thrown off, which being done, the tender skin underneath it soon hardens and has an ugly appearance; at length the new nail sprouts out from the root, and after some weeks again ornaments the finger.

Treatment.—The most speedy mode of procuring relief after the occurrence of the accident, is to plunge the finger into water as hot as can be borne. By so doing, the nail is softened and yields so as to accommodate itself to the blood poured out underneath it, and the agony is soon diminished; the finger may then be wrapped in a bread-and-water poultice: on the following or on the third day the blood has clotted, and separating into its clot and fluid parts, the pressure it makes on the sensible skin under the nail may be relieved by scraping the nail with a pen-knife or piece of glass till it becomes so thin that the scraping causes a sharp pain from its nearness to the sensible skin; the remaining thin nail then bulges, and the pressure is thereby mitigated; but if the squeezed part of the nail be very black, and if it be very tender when touched, then it is best after scraping to make carefully with a pen-knife a very small nick through the still remaining nail over the black blood, and immediately it is cut through, the watery part of the blood oozes out, the pressure almost entirely ceases, and instantaneous relief follows, but it rarely prevents the nail being thrown off.

If all the parts of the end of the finger be injured, nearly the same results follow as from an aggravated whitlow, and the whole, bone as well as soft parts, may mortify and be thrown off, or require amputation. This is not of rare occurrence in persons of unhealthy constitution, and therefore a jammed finger is not to be lightly thought of.

What has been said with regard to the finger, applies also to jammed toes, which are usually produced by the fall of heavy weights upon them.

BUNIONS.

A bunion is an enlargement and inflammation of one of the bursæ mucosæ* at the inside of the ball of the great toe, and sometimes of the instep, and is a most inconvenient and unsightly complaint. It commences by pain and redness, with swelling of the part, and is generally occasioned by wearing tight shoes or boots. If the boot or shoe be taken off and not worn again for some days, all the angry feelings subside; but if still worn, the pain, redness, and swelling increase. If the pressure be moderated, the swelling loses its redness and tenderness, but feels as if full of fluid, and after a time becomes hard and solid. Sometimes bunions at the toe inflame to a considerable extent, and go on to suppuration, and very troublesome lameness is produced.

Treatment.—The formation of a bunion may be prevented at its commencement, by having the shoe or boot eased wherever it presses or pinches, and not worn again as long as the part remains tender; one, two, or three leeches should be applied to the swelling, which should afterwards be kept soothed in a poultice till all tenderness has subsided. Malposition of the bones at the joint of the great toe is a frequent attendant, and perhaps an exciting cause of bunion. Whenever a bunion is fully formed, a last should be made of the exact shape of the foot, and the boot or shoe made upon it.

BURNS AND SCALDS.

These are among the most common accidents that occur, and the mischief which may ensue from them is much diminished by immediate attention: it is therefore of considerable importance that every person should be informed of the most ready and appropriate applications for their relief. Injuries of this kind are more dangerous when situated on the chest or body, than when on the limbs; and when extensive in children, are very apt to be fatal.

---

* Bursæ mucosæ are small membranous sacs situate about the joints, naturally filled with an oily fluid to lubricate the surfaces over which the tendons of muscles play.

Burns are generally more severe than scalds, because the skin is more frequently destroyed so as to produce a slough or mortification of the part, which must separate and come away before the wound can be healed; and when the burn is extensive and the sloughing of long duration, the patient often has not strength to support it. Scalds from hot water are usually less severe, unless very extensive, as the scarf-skin is only raised like a common blister; but where they are caused by boiling oil, or varnish, or any substance which adheres to the skin, the surface is more likely to be destroyed, and the part to slough, as in burns. In those cases where the clothes catch fire, the danger is not unfrequently increased by the sufferer running about in a state of alarm; whereas it would be better for him to roll on the floor till the fire is extinguished, or better still to cover himself with a loose carpet, rug, or blanket, to exclude the air, till a sufficient supply of water is obtained to throw over him. After the fire is put out, the individual should be placed on a bed, and the clothes removed piece-meal by cutting them off: much caution is required in taking away the body-linen without tearing off the skin, and where the linen sticks, so much only should be cut off as can be detached readily.

In scalds, the dress can generally be removed without much difficulty, as it is thoroughly wet. In burns, a portion of the destroyed linen will often stick firmly, which must be allowed to remain. Should the injury from either be extensive, a shivering, followed by depression, is very likely to come on; to check this, some warm wine and water or spirits and water should be given without delay, and bottles of hot water applied to the hands and feet to support warmth. In more severe cases of depression, it may be necessary to give ammonia and opium, as half a tea-spoonful of salvolatile and twenty drops of laudanum, in a glass of water; the salvolatile may be repeated with five drops of laudanum, if requisite, in an hour or two.

Treatment.—Burns and scalds are met with in three different states,—first where the skin is only blistered;

secondly, where the skin is removed; or, thirdly, where the surface is destroyed to any great degree. Where the part is blistered only, even if the blisters are extensive or numerous, there is no danger as long as they remain whole. They should therefore not be broken, but the fluid should be allowed to accumulate till a new skin is formed underneath (Cooper). Either moist or dry applications may be used, as a lotion made of a wine-glassful of gin or brandy, and half a pint of Goulard water or plain water, or the same portion of vinegar and water: all these should be used tepid. Flour may be dusted over the surface and for some distance beyond the edge of the injured part, and the whole covered by muslin or linen; the dusting should be well applied day after day, and repeated whenever slight oozing or moisture appears, so that the flour may form a cake over the surface: this is a most generally applicable and useful remedy. Cotton or wadding should envelope the parts, the woolly surface being applied next the injury, and rolled two or three times round, or soft pulled cotton may be applied thickly, but lightly, in the same way, and rolled over; it may remain on twenty-four hours, or even three or four days. If this plan be adopted in the first instance, blistering will often be prevented, or if it occurs, it will soon subside. There is sometimes considerable pain after the application of the cotton, but it is generally not of long duration, and the inflamed skin seems to be relieved by the perspiration of the part. It is of importance to prevent the access of external air to the injured surface; and the more extensive the part may be which is involved in the accident, the greater care will be required not to expose it to atmospherical influence, which increases the pain and adds to the corresponding depression. While the blister remains whole, nature is forming a new cuticle or scarf-skin, and after a day or two the part becomes distended and painful, the contained fluid looks milky, and there will be a red line round the edge of the blister: the fluid may then be let out by puncturing the blister a little above the margin with a large needle, and as the fluid flows, the surface of the old and scarf-skin may be gently pressed down, and punctures made in different places, so that all the fluid mav escape;

but on no account should the skin be removed. When the skin is destroyed or separated from the surface, turpentine is one of the most useful remedies, and if its application give much pain, it may be mixed with an equal quantity of linseed or olive oil, and smeared, by means of a camel's-hair pencil or a fine feather, over the injured part, which should then be covered with lint or linen spread with resin ointment (yellow basilicon): this dressing should remain on twenty-four hours, and then the part should be bathed with spirits diluted with a small portion of warm water, and the dressing reapplied: after a few days the wound may be dressed with lint spread with calamine ointment, Turner's cerate, or zinc ointment. One part of linseed-oil and two parts of lime-water, well mixed, form an excellent liniment for extensive burns; it may be smeared over the injured part, or a piece of linen may be dipped in it, and after the liniment is drained off, applied so as to extend beyond the margin of the burn, over which a roller should be passed; the dressing should be removed once in twenty-four hours, bathing the wound with spirits, &c. at the time, and subsequently dressing it with calamine or zinc ointments. Where the life of the skin is destroyed, as dead parts cannot be stimulated, it is advisable at once to apply a warm poultice made of crumb of bread and linseed-meal, renewing it once in twenty-four hours, and fomenting each time with hot water: this treatment should be continued till the slough separates, and the wound then dressed with calamine, zinc, or lead ointment; or it may be dusted with flour, which will form a crust over it, usually having cracks in it for the discharge of the matter; but if this does not take place, and there be much uneasiness, the crust must be carefully broken to allow of the escape. Where the discharge from the surface is very great, it may be dusted with chalk or starch powder through muslin. As the new skin forms, the discharge ceases and the crust generally drops off in pieces; but when it does not scale off and come away, and when the discharge continues, accompanied with pain, its separation will be accelerated by fomentation with warm water and the application of a poultice; and if any part of the surface remains unhealed after its removal, it may be again dusted with flour, or dressed with calamine or zinc ointment, or the acetate of zinc lotion, and the whole supported by rolling it carefully.

In some cases of extensive burns, after the sufferer has recovered from the shock, a great degree of febrile excitement and inflammation will ensue, which must be treated by the administration of mild aperients and saline mixture, and adopting a spare diet; but in the latter stage, where the patient is worn down by the duration of the malady and a large discharge, he must be supported by a liberal diet, with porter, wine, or spirits, proportioned to his former habits.

"Wounds of this kind produce most remarkable deformities, owing to the natural tendency there is in the cicatrix to contract. The wounds often heal smoothly and afterwards become puckered. These contractions are especially apt to occur in such parts as the neck, where the chin is united to the chest, or where the fore-arm is connected to the upper-arm, the leg to the thigh, and the latter to the abdomen, or the fingers to each other. In the limbs this occurrence may be prevented by keeping them extended by means of a long splint, which should reach from one extremity of the limb to the other. But as to the neck, do all you can by confining the head back, the contraction will take place."—*Cooper's Lectures.*

"Sometimes, after going on well apparently for a short time, the patient becomes dull, heavy, and insensible, and dies in a few days. This not unfrequently happens in children scalded about the belly or chest; water is poured out suddenly into the belly, chest, or head, but more commonly in the latter, and destroys them."—*South.*

"A child spilt some tea, which ran over his chest and abdomen, and he died in three days."—*Cooper.*

BUBO.

A swelling of a lymphatic gland, particularly those of the groin or axilla (arm-pit). This may arise from the mere irritation of some local disorder or strain, in which case it is named sympathetic; or from the absorption of some irritating matter, as the venereal poison; or from constitutional causes, as in the pestilential bubo. The term bubo is rarely applied, except to venereal swellings of the inguinal glands or pestilential glandular tumours. Those arising from a strain or irritation are usually more extensive than those of venereal origin.

A bubo comes on with a pain in the groin, accompanied with some degree of hardness and swelling, and is at first about the size of a kidney-bean, but continuing to increase, it at length becomes as large as an egg, occasions the person to experience some difficulty in walking, and is attended with a pulsation and throbbing in the tumour, and a great redness of the skin. In some cases the suppuration is quickly completed; in others it goes on very slowly: and in others again, the inflammatory appearances go off without any formation of matter. In a few instances the glands have been known to become scirrhous.

As many other swellings in the groin, such as rupture, aneurism, lumbar abscess, and scirrhous affection of the glands, may be mistaken for a bubo, it will always be advisable in doubtful cases to inquire whether or not the patient has lately been afflicted either with a gonorrhœa or chancre; and whether or not he has lately laboured under any other complaint that might have given rise to the swelling; as a sore toe from a suppurating corn, or using violent exercise by jumping or otherwise.

The Treatment of bubo is similar to that required for abscess generally; as by the application of five or six or more leeches, according to the extent of the swelling, followed by a tepid poultice to encourage the bleeding, and afterwards by the Goulard or cooling lotions (Nos. 139, 142, and 145), and the administration of saline aperients (Nos. 20, 23, 27); perfect rest should be strictly observed, in order if possible to avoid suppuration taking place (see Abscess and Venereal Disease).

CANCER.

Cancer usually commences as a hard tumour, and exists in two states: the first is when it presents the appearance denominated scirrhous or occult cancer; the second is when it softens or ulcerates and degenerates into open or true cancer.

Scirrhous or occult cancer is a hard tumour of limited extent, and generally single: it is distinguished at this period by induration, coldness, whiteness or paleness, insensibility, and deficiency of red blood-vessels—a state indicating the low vitality of the part. Scirrhous tumours may remain nearly stationary for several years, occasioning little or no constitutional disturbance; but after some time an important change takes place in their structure, and the disease afterwards makes rapid progress, its rapidity depending on the state of the patient's constitution: the tumour mostly increases in size and firmness, and at length is accompanied by lancinating pains, as if a sharp-pointed instrument were being thrust into it; the superficial veins become more prominent, and there are uneasy and painful sensations in the surrounding parts; it then proceeds on to suppuration, forming an ulcer of the worst kind.

Open or true cancer is an ulcer of the most malignant character: it has an uneven surface, with ragged and painful edges, and spreads in a very rapid manner, discharging a thin acrimonious matter that excoriates the neighbouring parts, and has a very fœtid smell.

There are two varieties of true cancer, the hard and soft; the latter being again divided into that resembling brain, and that resembling gum.

Cancer is mostly confined to glands, and some parts are more frequently the seat of the disease than others; as the female breast and womb, the stomach, the liver, and the testicles. There is scarcely, however, any organ or texture of the body which is not liable to be attacked with this malignant disease; as the brain, the eye, the lip, the face, the nose, the tongue.

The causes of cancer are very uncertain: it is undoubtedly an hereditary malady. Instances are numerous of several individuals in the same family having been affected by it. It most frequently occurs in persons of scrofulous disposition, and is said to be excited by the sudden application of cold, or by blows. It may be communicated by contact from one person to another; but cancerous matter under common circumstances will not produce the disease in a healthy person. It will often attack at the same time, or in quick succession, several separate and distant organs. Common soot seems to have the power of producing the disease; as in the scrotum in chimney-sweepers. Dr. Watson mentions a case of a similar variety occurring in the right hand of a gardener who for years had been in the habit of sprinkling soot over his flower beds with his hands.

Cancer is rarely met with before puberty, and occurs most commonly between the ages of forty and fifty. Women are more subject to it than men; and it developes itself usually about the time of the cessation of menstruation, as if heretofore the periodical discharge had kept up the healthy balance of the system.

"Out of cases among females, single women bear a proportion of 5·83 per cent., married women of 86·6 per cent., and widows of 7·5 per cent.; affording a complete refutation of the statement that celibacy favours the development of the disease."—(Dr. Lever's Statistical Notices of 120 Cases of Cancer of the Womb.)

Mr. Birkett says, "It is remarkable that the majority of women labouring under cancer of the breast will affirm that they have uniformly enjoyed good health; but many say they have had much trouble and grief; and it is well known that mental emotions impair the functions of nutrition, and in this way may give rise to the development of morbid growths. Others, again, state that they have never had a thought which troubled them, except for the existence of the malady."

In individuals affected with this disease there is mostly an appearance of a depraved state of the constitution, of which the cancer is the local evidence; and this faulty state is forcibly pourtrayed in the excessively fat, as well as in the extremely thin, by a remarkably sallow, dusky-coloured skin, and anxious expression of countenance. The contamination of the system, characteristic of cancer, is in the earlier state caused by irritation propagated from the scirrhous part, and subsequently by the absorption of the morbid secretion into the system.

Cancer of the breast.—Tumours may occur in the female breast from a variety of causes quite unconnected with cancer, as from external injuries, the application of cold, or the remains of induration after suckling; inquiry should therefore be made as to the history, origin, and progress of these tumours, and if possible the patient's mind should be diverted from all thought of its cancerous nature, as it is not unusual for tumours of the breast to remain quite passive and stationary for life if not interfered with, provided the general health be carefully attended to. At the time of the cessation of the periodical discharge, all tumours of the breast, and indeed the breasts themselves, are likely to be affected with some degree of uneasiness, which, however, subsides by attention to the bowels, and keeping the bosom cool and tranquil.

Scirrhous tumours at this period require more watchful attention; they begin to form adhesions to the skin and surrounding parts, and the glands in the arm-pit are apt to become enlarged, and as the disease approaches the surface, the integuments look puckered or drawn in folds, and the nipple appears retracted or sunk in. This appearance is rendered more striking from the puffy or œdematous state of the skin. As the disease advances, the skin becomes inseparably united to the tumour, and there is an increase of pain. In a short time the skin will acquire a redder tint, subsequently becoming purple ; and there is occasionally an oozing from the surface, which dries and forms scabs, while at other times the upper part is horny and hard, and cracks or chaps ensue; the skin thus becomes excoriated, and at length ulcerates: this may take place early, or not till the whole breast is involved in the disease. As the ulceration extends to the subjacent parts, the patient probably experiences a temporary relief from the discharge of a small quantity of sanious or ichorous matter. The ulceration will sometimes appear to be arrested in its progress, and under mild treatment it has been known to continue superficial for some months. Sooner or later, however, it penetrates deeply towards the more central parts, and presents a frightful gaping, eroding ulcer, with elevated everted edges, and with deeply excavated irregular surfaces, pouring out an extremely offensive, irritative, and corrosive ichor; it thus advances uncontrolled and uncontrollable, until death terminates the torments of the unhappy sufferer.

During the latter stages, the patient's health is much deranged, and where the breast is the seat of disease, the arm of the affected side swells, and cannot be moved without great pain; there is loss of appetite, the bowels are torpid; there is often sickness of the stomach, and the countenance has a jaundiced appearance; there is a difficulty of breathing, with emaciation, and severe and piercing pains are felt not only in the breast, but also in different parts of the body.

The duration of the disease, from its first development, is on an average from two to four years; but there are instances of its lasting from fifteen to twenty-two years, and of its being fatal at the expiration of a few months, terminating suddenly and unexpectedly.

CANCER OF THE WOMB.—In a work of this kind it is hardly possible to describe by any distinctive character this disease in its incipient state, as other less formidable diseases will be accompanied by a similar train of symptoms. It requires a practised professional hand for its detection. The usual time of the appearance of the malady is about that of the cessation of the menses. On some occasions the periodical discharge seems to be protracted beyond the customary time, or it lasts for the usual time, but is more abundant, or rather it is accompanied by hæmorrhage. Now and then menstruation will have ceased for some time, even for months or years. In the interval there will be pain in the loins, with a general sense of uneasiness and bearing down, accompanied by a white discharge. The neighbouring organs are always more or less disturbed; the bowels are sometimes relaxed, but more commonly obstinately costive; there is a frequent desire to pass urine, the general health is deranged, and there is some degree of emaciation. Afterwards, hæmorrhage will occur at intervals, which may relieve both the general and local uneasiness, and the patient will say that she has become regular again, as when she was young: this of itself is a bad symptom, as there is no second summer in life. At length ulceration takes place, and a discharge of the most offensive odour, and there is more or less pain of the excruciating kind. All these symptoms go on increasing in severity, until the sufferer is fairly worn out.

SCIRRHUS OF THE TESTICLE progresses in a similar manner to the disease in the breast, but is somewhat more tardy in its advancement. Eventually the form of the testicle becomes totally obscured, and is distinguished by its magnitude, great weight, and extreme hardness, and its surface being studded with projecting inequalities. The patient suffers from lancinating pains, not only of the part itself, but of the groins, belly, and spine; and if the testicle be not removed, it at length ulcerates, and is succeeded by all the terrible train of symptoms before mentioned.

Cancer of the scrotum is peculiar to chimney-sweepers, and is characterised by warty excrescences with horny incrustations disposed to bleed.

Scirrhus of the lips, sides of the nose, or any part of the skin, commences like a small wart or pimple, and is generally hard, and sometimes covered by a succession of horny scales, succeeded by malignant ulceration.

Cancer of the tongue either commences as a firm tumour, or a small, hard pimple, frequently bleeding from the surface; or an ill-looking corroding ulcer will suddenly appear, unpreceded by any morbid change of structure, but always accompanied by severe darting pains. The ulceration extends gradually to the back of the mouth, and a large portion of the tongue will often be destroyed before death takes place.

Treatment.—The earlier the advice of a medical practitioner is taken the better,—procrastination leads to hopeless misery or destruction. Above all, the sufferers and their friends should not be tempted by the specious advertisements of quack remedies, and be wasting time of which every day is invaluable. This disease, when fully developed in the constitution, is incurable; but much may be done in the earlier stage to stave off the active state by careful management and appropriate regimen. As a general rule, all those means which tend to uphold the health, having reference to the constitution of the patient, should be resorted to. A generous, mild and nutritious, but unstimulating diet should be enjoined, exercise in proportion to the strength should be taken, and cheerfulness of mind should be encouraged by friendly intercourse and change of scene; for severe illness or distress of mind will frequently give a sudden impulse to the disease; tepid, or even cold, sea-water bathing, as one or the other is most favourable to the state of the individual, should be resorted to, and the administration of medicine, as far as it tends to keep up the vigour of the system, will be useful. Various medicines have been employed, and their properties extolled as beneficial in this disease: the most popular of these may be briefly enumerated:—Sarsaparilla, as an alterative and tonic, of which the simple decoction, well prepared, of the red Jamaica variety is the best. Hemlock has been favourably mentioned by all, both as a local application and for internal administration, and by some has been considered as a specific: the best preparations are the powdered leaves and the inspissated juice. Henbane, belladonna, and stramonium, are useful sedatives, given singly or combined. But above all other medicine, the best to tranquillize pain in the latter stages is opium in its various preparations. Arsenic, administered internally or applied externally, is a powerful tonic and detergent, and there is the best evidence of its utility when cautiously employed; the most useful preparation of it is the solution of arseniate of potash of the Pharmacopœia; but this medicine ought never to be employed in domestic practice without medical advice.

Iodine is a powerful discutient, and has been much employed in the early stages of the disease, both locally and internally, in frequently repeated doses, in combination with potash, hemlock, sarsaparilla, or stomachic tonics. Mercury is most useful as an alterative, in the form of blue pill, when the digestive functions are deranged, or in that of the solution of the bichloride, cautiously given in combination with the tincture of bark or sarsaparilla. Iron, in all its preparations, is one of the best supporters of the vital energies, and is highly spoken of as a local application; as the phosphate made into a paste with water, or a solution of the muriated tincture.

The mineral acids, particularly the dilute nitric, are valuable as tonics; borax, or borate of soda, is a useful local application either to the cancerous tetter of the tongue, or as an injection in cancer of the womb.

Wort, or an infusion of malt, has been recommended, not only as a proper drink, but as a powerful medicine in this disease. It must be frequently made fresh, and the patient may take it at pleasure. Two, three, or even four English pints of it may be drunk every day for a considerable time. No benefit can be expected from any medicine in this disease, unless it be persisted in for a long time. It is of too obstinate a nature to be soon removed; and, when it admits of a cure at all, it must be brought about by inducing an almost total change of the habit, which must always be a work of time. Setons or issues in the neighbourhood of the cancer have sometimes good effects.

Indurated or scirrhous tumour of the breast, if free from pain, is better not interfered with, further than by defending the breast by wash-leather covering, with a layer of wool or wadding underneath in cold weather, and perhaps by the occasional exhibition of the pill, (Nos. 15*a* and 16), for a week or two at intervals. Should the tumour show a disposition to enlarge, two or three folds of linen may be moistened with a lotion composed of one part of eau de Cologne or rectified spirit, and three parts of water, and applied three or four times in twenty-four hours, and covered with oiled silk; or the lotions (Nos. 139, 140) may be applied in a similar way. Half a pint of well-prepared decoction of sarsaparilla should be taken in divided doses daily, and after a short time, five grains of iodide of potassium should be added to the sarsaparilla, increasing the quantity gradually to twenty grains, and the following pill taken every night:—

Take of Mercurial Pill and Disulphate of Quinine, of each one grain and a half; Powder of Conium, two grains: make into a pill with syrup.

If no amendment appears to be made, six or eight leeches should be applied about twice a month; and immediately after the leeching, the simple water-dressing is to be used till the bites heal, and then the lotions as before directed; or the ointment of the iodide of potassium may be smeared on the part, or on a piece of flannel, and worn on the breast: the gentle friction of the breast is preferable to rubbing, and is less likely to irritate the skin, but if it does so, the ointment may be diluted with an equal quantity of fresh-prepared lard, or the ointment of the iodide of lead may be used in its stead. After a time, as any one application or medicine seems to lose its influence, it is better to change. A plaster may be applied composed of three parts of the plaster of ammoniacum with mercury, and one of plaster of belladonna, or three parts of soap plaster, and one of belladonna, or the plaster of iodide of potassium.

Pressure has been practised with some success, for the cure of scirrhus and cancer, by Mr. Samuel Young, and the means employed by him were, shields of sheet-lead of various thickness, tin plates, straps of adhesive plaster, linen compresses, and rollers. The strength of the application is to be progressive, commencing in most cases with the use of straps only, in some by single, and in others by double layers; the force of their application controlled by the existing circumstances, and the sensations of the patient. Scirrhus of the breast may be specifically compressed by the use of the pressure plates, and the adjustment of the linen compress, including at the same time a general pressure of the whole. In cases of open cancer the wound is to be filled with powdered chalk, and the surface well dusted with hair-powder, after which the pressure is to be applied as in the case of scirrhus. Irritable parts should be defended by some goldbeater's skin. The best composition for the straps was found to be equal parts of common strengthening and soap plasters, mixed and spread somewhat thinly on linen.

The plaster should be uniformly smooth; and in the application of the straps, which ought to be long and commanding, it is of the first importance that all wrinkles should be avoided, and that an equal surface of resistance should be given. In the direction of specific pressure on the diseased part all sorts of partial stricture ought to be avoided.

After some weeks the sarsaparilla may be laid aside, and the preparations of iron exhibited; as the compound steel mixture, in doses of two table spoonfuls twice or thrice a-day. If the bowels are costive, a pill composed of four grains of the compound steel pill and one grain of aloes pill would be useful; of these, two may be taken twice a-day. Half a drachm of the sesquicarbonate of iron may be taken three times a-day in syrup: afterwards the malt-tea may be tried, with which half a tea-spoonful of the alkaline solution may be mixed, three times a-day. After a time, one grain of the bichloride of mercury may be dissolved in two ounces of compound tincture of bark, and one tea-spoonful taken twice or thrice a-day in water or in malt-tea. Lastly, two grains, increasing gradually to five, of the powder, or inspissated juice of the hemlock, three times a-day, with the alkaline tonic mixture (No. 123) may be administered.

All these failing to disperse the tumour, the propriety of its removal must be considered, about which the best surgeons are not agreed, but all are of opinion that to be successful it should always be done early and before the skin is affected or implicated, and that the knife appears to be by far the best mode of removing it.

Although the disease is admitted to have a constitutional origin, yet the propriety of extirpating the affected part, as soon as the true scirrhous character becomes manifest, may be conceded. After this is accomplished, the constitutional vice may be more successfully combated, and the reappearance of the local disease more probably prevented than at a later period. When, however, the system appears contaminated with the disease, nothing will be gained by an operation; but some advantage may still accrue from judicious and energetic medical treatment,—by tonics combined with anodynes, alteratives, and deobstruents. Medical measures have often obtained undeserved credit from the circumstance of local diseases mistaken for scirrhus having been removed by them; and surgical operations have probably sometimes acquired reputation from the same cause. When the disease has proceeded to suppuration and ulceration, we are to endeavour to correct the fœtor and acrimony of the discharge, to defend the surrounding parts from its effects, to quiet the pain, and to diminish the irritability of the wound. For this purpose the ulcer should be bathed twice a-day with a dilute muriatic acid lotion, in the proportion of one drachm to six ounces of water or bran tea, or the same proportion of solution of chlorinated soda with the bran tea, and then a carrot poultice, a fermented poultice, or the charcoal poultice applied: to allay pain, either of these may be sprinkled with a drachm or two of powdered hemlock, or a scruple of extract of poppies may be mixed with the poultice; or the jelly of starch for a time forms, perhaps, a more soothing poultice than either, where the surface is very irritable, and it is more comfortable applied cool or cold. Either of these poultices may be made with a decoction of the leaves of hemlock, henbane, or belladonna, in place of water. Sometimes the application of some simple cerate, as cerate of zinc or acetate of lead, spread thinly on fine lint, is more grateful; or the phosphate of iron may be made into a paste with water and applied to the ulcer with a hair-pencil; or a dilute solution of the muriated tincture of iron (ʒij. to half a pint of water) may be used in the same manner; a dressing of the simple cerate being placed over it, and the breast supported by means of a sling round the neck. The patient may take from one to five grains of powdered hemlock three times a-day, or half a grain of opium, gradually increasing the dose according to necessity; or a combination of opium, hemlock and henbane: as

Take of Opium, powdered, one grain.
Inspissated Juice of Hemlock,
Ditto ditto of Henbane, each eight grains.
Mix, and divide into four pills.

Take one pill three or four times a-day, and with these the decoction of bark, the tonic mixture, or the preparations of iron, or, what is frequently more agreeable, the nitric acid mixture (No. 126).

In cancer of the womb repose in the horizontal posture is of paramount importance. The same general mode of treatment is to be observed as already laid down, with the occasional application of leeches to the loins and groins, intermediately between the monthly periods, if the patient be still regular. The lotions should be used by way of injections up the vaginal passage, and an opiate lavement or a suppository at night should be administered, to allay the local pain and to procure sleep. Dr. Ashwell says, "in the early state much may be done by the topical application of iodine, aided by the recumbent posture, abstinence from sexual intercourse, cupping on the loins, a mild, unstimulating, and often a milk diet, gentle aperients, narcotic injections into the vagina, and the almost daily use of the warm hip bath." Dr. Montgomery says, "I am perfectly convinced something may be done to stem at its source the torrent of agonies that will otherwise overwhelm the patient, if not altogether to turn it aside, and rescue the victim from the sad fate impending over her.

In cancerous ulceration of the tongue, a mixture of equal parts of the borate of honey and powdered hemlock should be applied with a camel's-hair pencil several times in the day, and the surface occasionally touched with the muriated tincture of iron; and a drachm of the dilute nitric acid should be taken three or four times a-day in water sweetened with syrup of orange-peel, or ginger, and the general health upheld by a nutritious diet, &c.

In cancerous ulcers of the face, the parts affected may be touched with the arsenical solution of potash, or the borate of honey and hemlock, or the muriated tincture of iron; and the black wash applied three times a-day will often act beneficially.

During the treatment of this disease, particular attention should be paid to the secretions and evacuations. The bowels should be kept freely open by mild aperients combined with tonics and vegetable bitters. (Nos. 121-2-3-4.) The diet should be nutritious and easy of digestion. Change of air and scene serve essentially in assisting the influence both of medical and dietary treatment, and several of the tonic and deobstruent mineral waters are very useful. Therefore Bath, Buxton, Tunbridge Wells, and the Cheltenham chalybeates may be resorted to.

CARBUNCLE.

Carbuncle is a gangrenous inflammation of the cellular membrane and skin. It is essentially the same affection as a boil, differing in magnitude and situation.

Carbuncles usually form on the trunk of the body, seldom, if ever, on the extremities; in the majority of instances they are seated on the back of the neck, on the shoulders, on the space between them, or on the loins; perhaps more frequently high up on the back of the neck. Carbuncle is indicative of a deranged state of the system, and is mostly preceded by boils.

Symptoms.—When a carbuncle is about to take place it is generally preceded by pain, followed by a swelling of considerable hardness. The surface of the swelling or tumour is at first florid red; it then assumes a livid redness, and has a spongy, doughy feel, and then a number of little ulcers form on the skin, giving it a honeycomb appearance, so numerous are their orifices; and from these, a white matter is discharged; at length the little apertures run into each other, and form one, from which the dead cellular membrane begins to escape. Patients generally recover from carbuncles even of enormous size, if they are situated on the back; but those on the scalp are more frequently fatal: in these latter cases there is always an inflammation of the membranes of the brain.

Treatment.—It should be treated first as a boil, with poultices; afterwards, the peculiar treatment of carbuncle consists in making at an early period a deep crucial incision on the surface of the swelling, for the purpose of facilitating the suppuration of the deadened parts. Subsequently the port wine poultice, made with linseed meal and port wine, should be applied, and the patient must be supported by a liberal diet,—wine, porter, &c. Bark should be given, and occasionally opium, with ammonia, if there be much depression.

CATALEPSY.

Catalepsy is a seizure of the frame in which the powers of voluntary motion and sensation are lost; the limbs, however, being flexible, yet retaining any position that they may be placed in, and respiration continuing. The signs of life are occasionally so obscured, that the patient has been prematurely accounted dead. It is so singular a disease that it has been regarded by some as an imposture. The patient is often conscious of what is passing, and will afterwards relate it, though unable at the time to manifest consciousness. The fit is of variable duration, and of itself is rarely if ever fatal, but the intellectual faculties seem to suffer by its frequent repetition.

Dr. Guy says, "A lad of about fourteen years of age, a playmate of my own, was subject from childhood to this disease. He was often seized in the midst of his sports, at irregular intervals, and without any previous warning, and fixed like a statue in the attitude in which he happened to be at the moment. The fit rarely lasted more than one or two minutes, and when it ceased he resumed the sport in which he had been engaged with a slight air of surprise and embarrassment." The editor of this volume has seen a young lady lie for upwards of twenty-four hours without any apparent signs of life except breathing. The origin of the disease is very obscure, but appears to be closely allied both to hysteria and epilepsy, and to be excited by strong mental emotions and deranged digestion. The class of persons mostly subject to it are the highly susceptible and nervous.

Treatment. — During the fit, if it be of any length, mustard poultices may be applied to the pit of the stomach, or between the shoulders, the feet immersed in a warm mustard bath, and the face dashed with cold water. When the paroxysm has passed, whatever derangement in the state of health is most prominent should be attended to. If there be turgescence of the face with intense headache, it may be well to take some blood from the back of the head or temples by leeches or cupping; but this can be very rarely required. As the digestion is mostly in fault, occasional active purgation by two, three, or four grains of calomel, followed by a compound senna draught with decoction of aloes, will be advisable. The dejections will generally be found dark and constipated, or peculiarly pale and offensive. At the same time the system should be supported by tonics, as the steel mixture (No. 128), or the cascarilla with ammonia (Nos. 118-122). The diet should be nutritious, light, and easy of digestion; exercise in the open air proportioned to the powers should be taken, and the shower-bath or sea-bathing resorted to. The chalybeate spas are much to be recommended.

CATARACT

Consists in opacity of the crystalline lens, or its capsule, which prevents the passage of the rays of light and precludes vision. The pupil seems closed by an opaque body, of variable colour, but commonly whitish: the pupil contracting and dilating. The patient is totally deprived of sight. It is commonly a disease of elderly persons, although not unfrequently congenital. It forms slowly; objects are at first seen as through a mist, and it is not till after months or years that the sight is wholly lost. Many persons have cataract in one eye for a long period without being conscious of it, or until some accident prevents their seeing with the other eye. No means will obviate the evil except an operation, which consists in removing the obstacle to the passage of light to the retina, the essential organ of vision.

CHAPPED HANDS.

These are very troublesome during frosty and cold weather, and dry easterly winds, and may in great measure be prevented by carefully drying the skin after washing, and never using hot water. The following has been recommended as a lotion, to be used two or three times a-day:—

Take of Borax, two scruples,
Glycerine, half an ounce,
Water, seven ounces and a half. Mix.

Or, after thoroughly washing the hands, smear them well over with honey, which wash off quickly, and then carefully dry them; or, after washing and drying, smear or rub the hands with the following ointment,

Take of Camphor, finely powdered, half a drachm,
Spermaceti Ointment, one ounce. Mix.

Or, if preferred firmer, or in a ball—

Take of Spermaceti, one ounce,
White Wax and Olive Oil, of each four ounces.

Melt gently in a pot placed in boiling water, and add one ounce of honey and half an ounce of powdered camphor: stir the whole together while cooling, then form into balls.

CHICKEN POX.

An eruption, preceded by chilliness, succeeded by flushings and heat, pains in the head and back, thirst, restlessness, and quick pulse; at other times none of these symptoms are perceptible. About the second or third day, the vesicles become filled with a watery fluid, which is never converted into yellow matter, as in the small pox (to the milder species of which it, however, bears some resemblance), and about the fifth day they usually dry away, and are formed into crusts or scales. No danger ever attends this disease.

Causes.—Specific contagion, like the small pox, affecting a person but once during life.

Treatment.—Spare diet on the appearance of the eruption, with a dose or two of some cooling aperient, for the most part is all that is necessary; should, however, the febrile symptoms run high, we must give small doses of antimonial powder, with saline draughts and nitre, diluent drinks, keeping the bowels open with gentle laxatives or emollient clysters, &c. The same treatment will also be proper in swine pox, which, in fact, is nothing more than a species of chicken pox.

The eruption of chicken pox is either not preceded by fever, or by one of uncertain continuance; while the small pox is always preceded by fever of a certain duration; the vesicles appear earlier in the chicken than in the small pox, and come out in succession or irregularly, and have always conical heads; whereas small pox pustules are depressed in the centre.

CHILBLAINS.

Chilblains are troublesome inflammatory swellings, to which the fingers, toes, heels, and other extreme parts of the body are subject from exposure to cold. They are red or purple, and attended with a good deal of itching, tingling, and smarting. If properly managed, the skin remains whole, and they usually subside in a few days; but if neglected, the skin blisters, and the chilblain is said to break, and is succeeded by a sore very difficult to heal.

The best mode of prevention is to avoid as much as possible exposure to wet or cold: and on the approach o winter, persons subject to them should wear woollen stockings and gloves, or washleather socks, and gloves lined with washleather, and not expose the hands and feet when cold immediately to the fire.

Treatment.—In the first stage, rub them twice a day with either of the liniments (No. 136), or

Take of Solution of Acetate of Lead,
Camphorated Spirits, of each equal parts. Mix.

To be applied twice a day with a hair pencil.

The itching may be relieved by brushing over the inflamed skin strong vinegar or dilute sulphuric acid. Chilblains may often be prevented from breaking by keeping them covered with piece of soap plaster, spread on linen. When they have broken, a bread-and-water or linseed-meal poultice is the best application for some days, and afterwards the sore surface should be dressed with the resin ointment spread thinly on lint, or with an ointment made of equal parts of the ointment of nitrate of mercury and white cerate, applied in the same manner.

CHOKING.

Choking by substances getting into the gullet or stopped between the mouth and stomach is not an uncommon accident; it is extremely dangerous, and generally the effect of carelessness. Children should be taught to chew their food well, and to put nothing in their mouths which it would be dangerous for them to swallow. Many persons are in the habit of putting pins, nails, and other sharp-pointed substances in their mouths. This is extremely injudicious, as a fit of coughing, or other accidental cause, calling off their attention, may force on the substance unconsciously. Dr. Buchan relates that a woman discharged a great number of pins, which she had swallowed in the course of her business, from an ulcer in the side. Persons are sometimes choked and killed in a few minutes from this cause, when eating quickly and carelessly. Mr. South relates the case of a man killed by a large piece of meat sticking in his throat, and preventing the air passing into the windpipe. It was supposed he had died of apoplexy, but on examination of his body, this large piece of beef was found in his throat. Hasty eaters are often liable to great pain and distress from bolting large lumps of food, which for a time stick in the gullet. This may usually be overcome by taking large draughts of water, and making great efforts to swallow; the quantity of water distends the gullet above the lodged food, alters its position, and both water and food pass into the stomach with a sudden jerk. It is always advisable, when any choking occurs while eating, to thrust the finger and thumb as far back into the throat as possible, and remove any substance without delay.

Sometimes fish-bones or pieces of other bones are swallowed at meals, and may pass into the stomach without causing any inconvenience, or they may scratch the gullet as they go along. At other times the bone lodges, and the point runs into the gullet and there remains. This, though not often a dangerous accident, is very distressing, causing much pricking in every attempt to swallow, and sometimes attended with violent coughing and vomiting. Occasionally, without anything being done, the bone, by some accidental movement, will get dislodged and pass into the stomach. After the removal of the bone or other offending substance by the assistance given, or by its being swallowed, the sensation of pricking will remain in the throat for some time; commonly it is only from the scratch or slight wound which remains, and the sensation will subside in a few days. Now and then a mistake may arise; thus Mr. South relates a case in which a fish-bone was swallowed and pulled out in the course of a few hours; but the distress and difficulty of swallowing continued, in consequence of which a bougie was passed on the fifth day, and readily descended into the stomach, so that it seemed quite certain that there was no obstruction, but on the very same evening a violent fit of coughing came on, and a second bone was thrown out, immediately upon which the relief was complete.

When the substance is detained in the gullet, there are two methods of removing it; either by extracting it or pushing it down. It is better to extract if possible: this may sometimes be effected by pushing the finger far down and hooking it up with the nail; this not succeeding, a pair of forceps or pliers may be tried; these failing, a hook may be made with a strong iron wire or a thin and narrow flat piece of iron, which should be sufficiently long not to slip out of the operator's hand, and the hook should be covered by sewing over it a piece of wash-leather or tape. If the substance elude the hook, an emetic may be given, which will often effect its expulsion. Should these means fail, or even before their trial, immediate relief will sometimes be obtained by chewing some crust of bread, or hard apple, getting two or three mouthfuls into the throat and then taking quickly three or four gulps of water, which will force the bread against the bone or other substance, and frequently carry it down with it into the stomach; or a bougie, or wax candle rendered flexible by dipping it into tepid water, should be well oiled and passed down the throat. Substances may be sometimes so wedged in the throat as to require an operation for their removal or to enable the sufferer to breathe.

Dr. Munro mentions the case of a boy who got a halfpenny fixed fast in his gullet, where it remained for three years, when the boy died of consumption.

Children often swallow buttons, shells, or some of their playthings, and thus cause great alarm to their parents or nurses. These accidents very rarely, however, do mischief; the articles are usually carried through the bowels with the food, and discharged with the motions: the more solid the latter are the more likely is the foreign substance to be entangled by them, and therefore drastic purgatives are better avoided: there is not the same objection to a moderate use of castor-oil, which may hasten the expulsion.

Choking may arise from things getting into the voice organ or into the windpipe. Occasionally a person while eating or drinking thoughtlessly attempts to speak, and thus forcibly pushes up the epiglottis or covering from the chink of the voice organ or larnyx ; immediately this happens a portion of the fluid or solid which may be at the back of the mouth slips into the larynx, and causes violent spasmodic cough, with a feeling of strangulation, the cough continuing with sensation of great distress till the intruding body is expelled. This is the condition in which a person is placed when "something has gone the wrong way," as it is called. If the substance be small it may get fixed in the larynx, when the symptoms will be most violent, and unless it can be got out the person is usually destroyed in a few days by the irritation, inflammation, coughing, and difficult breathing which it causes.

This accident rarely admits of any other relief than by surgical operation. Any one having a long finger, by passing it well back, and at the same time drawing the tongue forward with a curved spoon-handle, may try to hook the substance into the gullet with the finger-nail · but the chances of success are very small.

The substances which slip through the chink of the voice organ more frequently pass down into the wind-pipe, descending sometimes even below its division, and getting into one or other of the two great branches from it, which run to the two lungs. Small stones, beads, peas, cherry-stones, and such like things, occasionally slip into the windpipe of children; and these can usually be detected passing up at each expiration and falling down again at each inspiration. If tho substance be of a larger size, as a piece of money or a nail, it generally lodges in the great trunk of the windpipe itself, or in one of its branches, changing its place rarely and with difficulty. The cough in these cases is less frequent and distressing; but it comes on in violent fits at intervals, and in one of these the substance is sometimes expelled with great force. In this condition there is much less danger than when the foreign body is lodged in the larnyx, because the windpipe is less irritable, and will even by degrees become accustomed to the intruder, more especially if it has got lodged in one of the branches of the windpipe; and sometimes after a few days the only inconvenience experienced is a dry cough. The length of time bodies will remain lodged in the windpipe is very variable. An instance is related where a chicken-bone was expelled after a period of twenty years, and another where a plasterer threw up a lath-nail, which had slipped into his windpipe more than twelve months before. Both these persons died some years after with diseased lungs, which is the usual consequence of foreign bodies being in the windpipe or its branches for any length of time.

Treatment.—If the substance be light and movable, and pass up and down as the sufferer breathes, there is good ground for hope that the escape of the body may be effected, without any surgical operation, by a little patience and perseverance. It is possible that an active emetic might accomplish the removal, provided the patient, during the act of vomiting, has the chest in an inclined posture. There are two remarkable cases of this kind related. One was that of a Highland shepherd, who had swallowed a small bullet; by placing him on an inclined plane, made by the back of a chair, suspending him with the head downwards, and giving him a smart slap on the back and a few sudden jerks, the bullet was spit up on the third trial, after some convulsive retchings. In the second case, a half-sovereign slipped into the wind-pipe; the patient, on the sixteenth day after the accident, made an attempt to get rid of the coin by placing himself in the prone position, with his breast resting on a chair and his head and neck inclined downwards, and having done so, he immediately had a distinct perception of a loose body slipping along the wind-pipe, but a violent cough ensued: on resuming the erect posture, he again had the sensation of a loose body moving in the opposite direction, that is, towards the chest. The experiment was repeated six days after more completely: he was placed in the same position on a platform made movable by means of a hinge in the centre, so that one end of it being elevated, the other was equally depressed. The shoulders and body having been fixed by means of a broad strap, the head was lowered till the platform was brought to an angle of about eighty degrees with the horizon. At first no cough ensued, but on the back having been struck with the hand, the patient began to cough violently; the half-sovereign, however, did not make its appearance. This process was twice repeated with no better result; and on the third occasion the cough was so distressing, and the appearance of choking so alarming, that it was not thought right to proceed further. Two days after, the wind-pipe was opened by surgical operation, but the money could neither be felt nor seen. The sufferer was therefore kept quiet for ten days to recover the effects of the operation, and was then placed again on the movable platform in the position before mentioned, and the back was struck with the hand: cough followed, and he presently felt the coin quit the trachea, striking almost immediately afterwards against the front teeth of the upper jaw, and then dropping out of the mouth." — (South's Household Surgery; Brodie, Medical and Chirurgical Transactions, Vol. xxvi.)

Cholera Morbus; English Cholera.

The cholera morbus is a violent purging and vomiting of bilious matter, attended with gripes, sickness, and a constant desire to go to stool. It comes on suddenly, and is most common in autumn.

In warm climates it is met with at all seasons of the year, and its occurrence is very frequent; but in England and other cold climates it is apt to prevail most during the autumnal months, from excessive heat, or sudden transitions from heat to cold; and the violence of the disease has usually been observed to be greater in proportion to the intenseness of the heat,—circumstances which induce the belief that cholera morbus is the effect of a warm atmosphere producing some change in the state of the bile, which may consist either in its being more acrid, or its secretion being preternaturally increased. In some instances, the disease proceeds from obstructed perspiration, and food that passes readily into the acetous fermentation, &c., though these causes might not give rise to it without the predisposition acquired by preceding great heat, succeeded by sudden transitions of cold, particularly in the evenings.

Symptoms.—The attack often comes on suddenly, and is generally preceded by *cardialgia*, or heart-burn, sour belchings, and flatulencies, with pain of the stomach and intestines. To these succeed nausea, excessive vomiting, and purging of green, yellow, or blackish-coloured bile, with a distension of the stomach, and violent griping pains, as well as cramps of the legs and abdominal muscles. There is likewise great thirst, with a very quick and unequal pulse, and often a fixed acute pain about the region of the navel. As the disease advances, the pulse often sinks so low as to become quite imperceptible, the extremities grow cold or cramped, and are often covered with a clammy sweat, the urine is obstructed, and there is a palpitation of the heart. Violent hiccuping, fainting, and convulsions, are the signs of approaching death. Death, however, is not frequent in this form of cholera in this country.

Causes.—It is occasioned by a redundancy or putrid acrimony of the bile; food that easily turns rancid or sour on the stomach, as butter, bacon, sweetmeats, cucumbers, melons, cherries, and other cold, unripe fruits. It is sometimes the effect of strong acrid purges or vomits, or of poisonous substances taken into the stomach. It may likewise proceed from violent passions or affections of the mind; as fear, anger, &c.

Favourable symptoms are a gradual cessation of the vomiting, succeeded by sleep, or a gentle moisture on the surface of the body.

Unfavourable symptoms are, violent cramps and convulsions, extreme prostration of strength, cold clammy sweats, excessive distension of the abdomen, difficulty of breathing, great anxiety, and constant hiccup.

Treatment.—From the irritable state of the stomach at the commencement of cholera, no medicine of any kind can be kept down, everything being thrown up immediately after it is swallowed. In order to allay this irritation, and to favour the evacuation of the acrid contents of the stomach and bowels, mild diluent and mucilaginous drinks should be given, such as barley-water, toast-water (the bread being well browned or burnt), which last, when taken cold, often tranquillizes more, and is more grateful, than any other drink : weak chicken or veal broth, and warm clysters of the same, will be useful. The stomach and bowels should be fomented with flannels wrung out of hot decoction of poppies or camomile flowers ; or a piece of flannel well moistened with equal parts of camphorated spirits and laudanum, or with spirits of turpentine, may be applied, and hot flannels or a stomach-warmer over them. The feet may be placed in a mustard bath, or kept warm by bottles of hot water wrapped in flannel. Should the stomach continue irritable, small lumps of ice may be dissolved slowly in the mouth and swallowed, or a saline draught taken in a state of effervescence (see Saline Draught, No. 28), or solid opium in one, two, or three grains ; or a large mustard poultice may may be placed hot on the pit of the stomach ; or three or four leeches applied there, and after their removal, a hot poultice over the bites. These means failing, three, five, or ten grains of calomel, according to the age of the patient, may be placed on the tongue and washed down with any of the drinks, and an opiate enema administered, or a suppository passed up the rectum. For the cramps of the legs, rubbing them well with the hand, or with the camphorated spirits and laudanum, will be beneficial. Should the pulse flag and extreme prostration come on, the mixture of carbonate of ammonia, with or without æther (No. 49), should be given, in spoonful doses, frequently, with solid opium. Immersion in the hot bath is recommended; but, as even the raising of the patient is hazardous, it is a questionable remedy.

When the attack has subsided, tranquillity should be observed, and restoration to a full diet gradually resorted to. An occasional mild aperient may be required ; and where there remains any spasm in the inside, from five to ten drops of laudanum should be taken twice a-day, in any aromatic water. Tonics, such as infusion of calumba or cascarilla (Nos. 122-4), assist in restoring the strength.

MALIGNANT CHOLERA, ASIATIC CHOLERA.

This new form of disease first made its appearance in this country in the autumn of 1831, and again in 1849, when it carried off in London above 15,000, and in the whole kingdom 80,000 persons. It began first to rage with terrible severity in India on the banks of the Ganges, in 1817, where it had prevailed before, but not to the same painful extent; thence it advanced slowly but surely, unchecked by any barrier of river, sea, or mountain, to Persia, Russia, and Hamburg, whence it proceeded to England. Its approach was observed afar off as distinctly as a storm is foreseen by the rising of the clouds from the horizon in the direction of the wind, and its arrival had been foreseen and foretold.

The malignant cholera makes its attack in two different ways. In the one, it is preceded for some days by diarrhœa, or rumbling movements of the bowels, and a sinking sensation of the stomach. In the other, the patient is seized upon suddenly without warning with a cold clammy sweat, extreme prostration of strength, accompanied mostly by vomiting and purging. The matters ejected from the stomach and bowels are colourless, without odour and without bile, like the washings of flesh or rice, and are familiarly spoken of as rice-water evacuations. These symptoms are succeeded by severe and painful cramps of the fingers, toes, calves of the legs, thighs, and muscles of the belly; the eyes are sunk and surrounded by a dark circle, the features contracted and sharpened, the surface of the body cold and generally blue, the lips purple, the tongue of a lead colour, and cold, and even the breath may be felt to be below its natural heat; the bulk of the body seems shrunk and diminished, the finger-nails become blue, and the hands and fingers are shrivelled like those of a washer-woman after a day's work; there is considerable hurry and anxiety in the breathing, the voice is peculiarly husky and feeble, and the pulse at first is very small and weak, and after some hours is not to be felt at the wrist; there is extreme restlessness and great thirst, the secretion of urine is entirely suppressed, an earthy and cadaverous odour is exhaled by the body, and the countenance becomes withered and ghastly. The senses are generally retained to the last, but the sufferers are usually very indifferent as to their condition. Many die in this, which is called the collapsed stage of the disease; some get well rapidly; in others, reaction comes on, the surface gets warm, the pulse becomes perceptible and quick, the tongue dry and brown, thirst still predominates, delirium ensues, and fever is established, and may terminate in recovery or death.

Duration.—From one to twenty-four hours.

Causes.—Whatever tends to lower the standard of health favours the attack of the disease,—intemperance perhaps more than any other cause, especially if combined with impure air and diet, foul water, insufficient food or clothing, and irregular and vicious habits. The comparative immunity of the higher orders, who are better lodged, and well fed and clothed, sufficiently establishes this fact.

There can be no doubt of the contagious nature of the malignant cholera, and of its being conveyed by individuals from one place to another. Whether it exists in the form of malaria or very minute animalculæ, is a point not solved. Whatever the nature of the contagion may be, there must exist a predisposition in the individuals to receive it, which is best counteracted by keeping up the general health, and avoiding excesses of all kinds; not that it is necessary to vary the ordinary mode of living, which is very likely to derange the regularity of the functions, and a due portion of well-dressed vegetables and ripe fruit may continue to be taken by those accustomed to them. Active purgative medicines should be avoided.

Prevention and Treatment.—When cholera prevails, the slightest tendency to diarrhœa or bowel complaint should be immediately attended to, and the medical attendant consulted without delay. When this cannot immediately be done, the chalk mixture, with five or ten drops of laudanum at a dose, may be taken and repeated every three or four hours, according to circumstances, and a farinaceous diet with milk, or nutritive broths with arrow-root or rice, adopted. Perhaps the most convenient form of medicine is the compound chalk powder with opium (or mixture No. 54), of which a child of four years of age may take five grains, and an adult twenty-five. Two or three doses of this may be kept in readiness. Should the above-named astringent medicines fail, two grains of the acetate of lead, with a quarter of a grain of opium, may be taken in a pill every three or four hours. Some folds of flannel may be put over the stomach, and a firm flannel belt, (not girt tight) worn, which will impart warmth and give support at the same time, or a plaster of equal parts of Burgundy pitch and the opiate plaster may be applied over the stomach. Neglect of the premonitory diarrhœa will allow the disease to run on to malignant cholera, over which, when thoroughly established, medicine has very little power. Although a very considerable number of remedies have been prescribed, and various modes of management instituted, none can be relied on.

The following Treatment in so formidable and rapid a disease until the arrival of the medical man, will be advisable. —Every means of inviting warmth to the surface should be taken, by the application of heated salt or bran, in bags, to the stomach and back, and bottles filled with hot water to the feet, general friction with warm flannels on the hand, and a large mustard poultice to the pit of the stomach. Three tablespoonfuls of salt in a quart of water should be given, and repeated every quarter of an hour till vomiting succeeds, and the intense thirst relieved by a continuation of the salt and water, in the proportion of a teaspoonful to the quart, and taken cold. "The favourable symptoms are:—the cessation of vomiting, purging, and cramp; the return of the pulse and of warmth to the surface; the disappearance of blueness of the skin and of the cadaverous-looking countenance; the reappearance of bile in the stools, and restoration of the secretion of urine." Should we be so fortunate as to produce reaction, any prevailing symptom of diarrhœa or fever must be treated accordingly.

COLD—CATARRH—COUGH.

Few persons pass through a winter without a cold (o catarrh). Dr. Buchan says the inhabitants of all climates are liable to catch cold; nor can the greatest circumspection defend them at all times from its attacks.

Cold, or catarrh, is a febrile affection, accompanied with inflammation of the mucous membrane of the eyes, nose, mouth and throat. If confined to the mucous membrane of the eyes and nostrils, it is called cold in the head (Coryza); when it extends to the mucous membrane lining the windpipe, it is called Bronchitis. On some occasions it attacks the mucous membrane lining the alimentary canal, causing sickness and diarrhœa; now and then, also, the mucous membrane of the bladder, causing derangement of that organ.

Symptoms.—Oppression of the breast, peculiar dryness and stuffed feeling of the nose, a sense of weariness, pain in the head, preceded by slight shivering and occasional flushes of heat, frequent sneezing, followed by watery eyes, discharge of mucus (running) from the nose, irritation about the throat, and slight cough.

The name suggests its ordinary cause,—cold applied to the surface of the body, mostly combined with moisture. The breathing cold dry air would not cause a cold, unless a person were exposed to it for any length of time in a current. It is often the result of carelessness or imprudence in not protecting the body against the variations of temperature, as by going out of heated rooms into the cold air insufficiently clad—a fertile source of catarrh, especially in children. For the most part a cold is a slight disorder, and does not materially affect the general health; but when severe, and of long duration, or frequently repeated, it lays the foundation of other diseases. Dr. Graves says: "Frequently recurring catarrhal affections, besides generating a state of chronic derangement of the mucous lining of the lungs, have a necessary tendency to produce other bad effects."—*Clinical Lectures.*

There are two varieties of this complaint,—the common catarrh or cold, and the epidemic catarrh or influenza, (of which hereafter.)

Treatment.—Most persons have their own domestic remedy for the cure of cold. One individual will wrap the head up on going to bed in a flannel night-cap, and take a glass of warm negus whey or gruel; another will take a tumbler of cold water, with or without a spoonful of sal volatile. A very good way to stop a catarrh, on its accession, is to go to bed early, to take half a pint of negus or any warm drink with a tea-spoonful of paregoric elixir or a table-spoonful of syrup of poppies, and a mild aperient pill, or instead of the pill, half an ounce of Epsom salts, or a Seidlitz powder early on the following morning. As a general plan of treatment, an abstemious diet should be observed, and diluent drinks, as barley-water, whey, &c., freely taken. A mild aperient should be administered, as a dose of compound senna mixture (No. 20) or Seidlitz powder, followed by a dose of saline mixture, with antimonial wine and nitre (Nos. 111-112), if the patient be of an inflammatory habit; otherwise, the saline with ipecacuanha wine (No. 111) every three or four hours; and at bed-time, a spoonful of paregoric elixir added to a dose of the mixture; or five grains of Dover's powder may be taken, and the legs bathed as high as the knees in warm water for ten minutes. Should the catarrh be severe, with much mucous discharge from the eyes and nose, it is better to remain in bed, but not to keep the apartment too warm or close, or to be wrapped up in too much clothing, as although it may accelerate the cure of the cold, it will increase the susceptibility, and render the person more liable to a recurrence of the attack.

"There is also a period of catarrh which has gone on unchecked, when you may accelerate its departure—" speed the going guest''—by a good dinner and an extra glass of wine. But this pleasant method is scarcely to be advised for persons of delicate habit, or in whom any phthisical tendency is suspected to exist, or who are prone to inflammation." (Watson.)

Dr. C. J. B. Williams recommends a dry plan of cure, of the efficacy of which he has a high opinion. It has the merit of simplicity, for it consists merely in abstinence from every kind of drink: no liquid, or next to none, is to be swallowed, until the disorder is gone. He allows, without recommending it, a table-spoonful of tea or milk for each of the morning and evening meals, and a wine-glassful of water at bed-time. One great advantage of this plan is, that it does not require confinement to the bed or house.

The man whose business calls him abroad may, with appropriate clothing, pursue his customary employment, and his cure is all the while going on. In fact, exercise, inasmuch as it promotes perspiration, helps the recovery.

Dr. Williams observes, that while this treatment is serviceable in catarrhal bronchitis, it is *most* successful in the snivelling cold in the head. It must be put in practice at the very commencement of the disorder.

Prevention.—The great thing to be done in order to obviate catching cold, is to diminish the susceptibility of the system by abstemious living, taking daily and regular exercise in the open air, and above all, the use of the shower bath, or sponging the surface of the body daily with cold water, followed by rubbing well with a coarse dry towel. This plan should be commenced cautiously, and in the summer time, by those of delicate habit.

COLIC.

In this disorder there is pain of the abdomen, with a peculiar twisting or wringing sensation round the navel, constipation of the bowels, with great flatulence, often nausea and vomiting, and extreme reslessness, but without fever or any alteration of the pulse; the pain is often relieved by pressure, and there are intervals of ease, although during the paroxysm it is apparently most excruciating and violent, and accompanied by a writhing about of the body. The belly is hard, drawn up in lumps or knots, and distended with flatus. In some cases of colic, the spasmodic contraction of the bowels is so violent, that perverted action ensues, and fæcal matters are vomited; this form has been called the iliac passion.

In the occasional absence of pain, in the fact of pressure affording relief, in the writhing about of the body, and the absence of fever, it differs from inflammation of the bowels. The pain of inflammation is of a more persistent burning character, and is aggravated by pressure. If the pain, however, of colic is not subdued, it may run on to inflammation, of which, indeed, obstinately constipated bowels are not unfrequently the harbinger.

Colic has been treated of under various titles, but it will be sufficient for every purpose to divide it into flatulent, bilious, and painters' colic.

Causes.—Obstruction of the bowels from indurated fæces, or calcareous collections; eating any unripe fruit, or too largely of any fruit—nuts particularly; drinking fermenting liquors or acid drinks; exposure to wet or cold; redundance of acrid bile; mineral poisons, as lead; or translation of gout. Some delicate people with weak bowels are particularly susceptible of flatulent colic: as hysterical and nervous persons.

Treatment.—In minor cases of flatulent colic, where there is no obstinate constipation of the bowels, a dram of spirits, or glass of warm brandy and water, with hot fomentation of the abdomen, and immersing the legs as high as the knees in a mustard bath (particularly where it arises from exposure to cold or retrocedent gout) will often afford relief. In other cases a warm rhubarb draught, with ten, fifteen, or twenty minims (No. 31) of laudanum, may be taken, and a large mustard poultice may be applied to the part in pain; or in more severe cases a piece of flannel moistened with equal parts of laudanum and spirits of turpentine, over which a stomach warmer may be placed. An enema of warm water should be administered, and where there is much pain from a collection of flatus, it will be better passed through a long elastic gum tube, by which means the expulsion of the flatus will be assisted. These means failing, a large dose of calomel, as from five to ten grains with two of opium, should be given, followed up by smaller doses, as two of the former and half a grain of the latter every four hours, and after the second dose half an ounce or an ounce of castor-oil; or ten grains of the compound extract of colocynth should be given, and repeated if required every six hours, and the enema intermediately, and the patient immersed in a warm bath. These means failing, an enema of a weak infusion of tobacco (as ten grains of tobacco to half a pint of boiling water) should be administered. These appliances should not be all huddled together in a hurried manner, but sufficient time must be allowed for their operation. Should anything like inflammation appear, some blood should be taken from the arm, or leeches applied to the abdomen; it often happens that while the blood is flowing the bowels will act.

LEAD COLIC (*Painter's Colic, Devonshire Colic, Dry Belly-ache* of the West Indies) is a form of colic to which persons are subject who work among lead, and formerly prevailed in Devonshire, and other cyder counties, where leaden vessels were used as vats and mills, and before the pernicious effect of lead was known, where it was employed to sweeten wines and rum, or prevent them turning sour.

The symptoms resemble those of colic generally, as violent and writhing pains of the belly; but they are often accompanied by partial paralysis of the limbs, among white lead grinders, plumbers, &c., as in the dangling or drooping of the wrists of painters. Now and then this partial paralysis will show itself first while the patient appears in average health; at other times two or three attacks of colic may be recovered from before anything like colic appears. There is usually in lead-colic pain in the head and limbs, cramp of legs, occasionally convulsions, and a blue line at the margin of the gums, where the teeth are covered with tartar. The Editor once saw the same effect in a medical gentleman who experimented on himself by taking sugar of lead.

Treatment.—The same as in the other forms of colic. If there is heat and flushed face it may be right to take away some blood from the arm, which will assist in arresting the spasm. External warmth should be applied to the belly, with friction, and the use of the opiate liniment. The feet and legs should be placed in a mustard bath, and a full dose of calomel and opium given, followed in an hour by an ounce of castor oil and enemas of warm water. Sometimes the opium will cause the bowels to empty themselves, shewing that the obstruction was from spasm.

Dr. Watson says, "My colleague, Dr. Wilson, has been very successful in relieving these patients by putting them in a hot bath, and having a large quantity of the water in which they were immersed gradually injected into the bowels. The bath presently becomes polluted, to the great solace and refreshment of the patient." (Dr. Watson's Lectures.)

If these measures do not succeed, one or two drops of croton oil may be added to the castor oil or colocynth pills, as before mentioned (No. 35*a*). After the bowels have been freely acted on, the great source of anxiety is removed; but it may be requisite for some time to continue the exhibition of purgatives and narcotics, and to observe a cautious and nutritious diet. The palsy, arising from the absorption of lead, is confined to the wrists, which the individual is quite unable to raise, and the muscles waste. From one attack patients mostly recover, but by a repetition of attacks, unless they change their occupation, they become miserable cripples, and the powers of life are exhausted by an accumulation of the poison in the system.

Treatment.—For the relief of this variety of palsy, the Bath waters are held in great estimation. The wrists should be supported by a board and bandages, and daily exercised by friction and shampooing, as also by the application of galvanism. Those whose work is connected with lead may in a great measure escape these baneful effects by strict attention to cleanliness both in their persons and apparel. They should not take their meals where they work, and before each meal they should carefully wash their hands, face, and mouth. Fat meats and butter should form a great portion of their food, and their drinks should be rendered acid by sulphuric acid.

Mr. Benson, the manager of the white-lead works at Birmingham, says that the men have been almost free from the disease (which before was very prevalent) since they have mixed sulphuric acid with their treacle-beer.

CONCUSSION OF THE BRAIN.

Injury of the head from external violence, blows, or falls, is often followed by very alarming effects, without any discoverable wound or bruise of the head: nor is the head always of necessity struck in concussion of the brain,—the same consequences may arise from a violent fall on the feet or breech, the shock being conveyed through the spine. The symptoms attending such a shock are generally in proportion to the violence of its effect on the brain. This effect may be momentary, as a transient degree of unconsciousness, from which the individual spontaneously recovers without any further symptom. If the concussion be very great, all sense and the power of motion are immediately destroyed, and death soon follows. Between these degrees there are many shades. Mr. Abernethy divides the symptoms into three stages. During the first stage of insensibility and derangement of the bodily powers which immediately succeeds the accident, the individual scarcely feels any injury that may be inflicted on him; his breathing is difficult without stertorous noise, his pulse intermitting, and his extremities cold. These symptoms go off gradually, and are succeeded by the second stage, in which there is sometimes sickness; the pulse and breathing become better, although not quite regular, but sufficiently so to induce warmth over the surface of the body; the feeling is so far recovered that the patient is sensible if his skin be pinched, but he still lies unconscious and insensible to slight external impressions. As the effects of concussion diminish, he becomes capable of replying to questions put to him in a loud tone of voice as to his sufferings; otherwise he answers incoherently, and as if his attention were occupied by something else. While the stupor remains, inflammation of the brain seems to be moderate; but as the stupor abates, the inflammation seldom fails to increase,—constituting the third and most important stage. These several stages vary much in their degree and duration; but more or less of each will be found to take place in every instance where the brain has been violently shaken. The effect of the injury may be more than simple concussion; some blood-vessel may have been ruptured, and its contents effused on or within the brain, causing compression. It is extremely difficult, if not impossible, to determine in the first instance whether the train of symptoms arises from concussion or compression; but in simple concussion, the insensibility is generally not so great as where there is compression, nor is the stupor so profound, nor is there stertorous breathing.

The treatment must depend on the state of the individual when he received the injury, its extent, and the time that has elapsed since its occurrence. Immediately after the accident little is to be done, for the brain requires time and tranquillity to recover from the shock, and the mischief may be increased by doing too much. Let the patient be laid quietly in the horizontal posture, in bed if possible, with a free admission of fresh air; remove or loosen the shirt-collar, &c., or anything that is tight round the neck; encourage warmth to the surface, immerse the feet if cold in warm water, or apply hot bottles to them, and sprinkle the face with cold water. If the depression be extreme, and of any duration, a little salvolatile or weak spirits and water may be given; but these must be administered with caution, lest they cause a proportionate degree of reaction or excitement, and subsequent inflammation of the brain. After revival, a mild aperient should be given, as a compound senna draught, and great care as to regimen and diet observed for some time, and all spirituous liquors avoided. Should the person have been intoxicated at the time of the accident, or if it took place directly after a full meal, an emetic of sulphate of zinc will be useful. If some time after the accident there be shivering, succeeded by severe head-ache and sickness, medical aid must be sought; in the meantime, some blood should be taken from the arm, or, the hair being removed, from eight to eighteen leeches (according to the age of the patient) applied to the head. The head should be slightly elevated and kept cool, an active purgative of calomel and jalap administered, and complete tranquillity observed, with regimen accordingly; for the extent of the mischief does not shew itself on some occasions until ten days or a fortnight have elapsed. If the apoplectic stupor continue from the first, or if, after the apparent recovery and well-doing of the patient, there comes on a sense of oppression, with drowsiness, and a degree of unconsciousness and stupidity, the probability is that extravasation on or within the brain has taken place, and surgical aid should be obtained, as the case wears a bad aspect.

CONSUMPTION.

Consumption is a wasting or decay of the body from any cause; but the name is generally restricted to pulmonary consumption, which arises from tubercular disease of the lungs. The disease, however, is not exclusively confined to the lungs, and its fatality is greatly due, in most instances, to a similar disease existing in other parts of the body. Tubercles are tumours varying in size from that of a small pin's head to a large pea: they consist of an unorganised matter resembling cheese, and are influenced in their appearance by the part on which they are deposited; after the lungs, they are more common on the surface of mucous membranes, as of the mesentery, and in the intestines: their formation is indicative of a scrofulous disposition or tendency. Now and then a number of them adhere together, forming clusters or bunches in a mass, like a piece of cauliflower.

Symptoms.—Cough, difficulty of breathing, expectoration, wasting, hectic fever, hoarseness or loss of voice, diarrhœa, and sometimes spitting of blood, and palpitation. The cough is at first slight and dry, and sometimes occurs only on rising in the morning, or on making any unusual exertion in the course of the day. It appears to be caused by irritation of the throat, and will disappear in summer and recur in winter. After a time it will be troublesome at night, and be accompanied by mucous expectoration. A protracted cough may be the result of chronic catarrh, or of derangement of the digestive organs (called stomach cough), or it may be hysterical, or that which sometimes attends pregnancy; but when it comes on gradually, and is of long standing, and not referable to any of the above or some other assignable cause, it may be regarded as suspicious.

Consumption, though generally, is not invariably attended with cough. The expectoration at first is of a ropy mucous consistence, with masses of green or yellow colour, and is more or less frothy in proportion to the ease or difficulty with which it is spit up; by and by it becomes more viscid and opaque, and is often mixed with round lumps of tubercular matter, and with streaks of blood. The sputa most characteristic of the disease consist of flocculent masses resembling wool. Spitting of blood to a greater or less extent prevails, sometimes amounting to hemorrhage, and when unconnected with any violence or accidental cause is distinctive of consumption: spitting of blood is rare before the age of puberty. Difficulty of breathing in the early stage is not very apparent; and many consumptive persons, from being enabled to take a deep inspiration, are led to consider that there is no mischief in the lungs: the fact is, they make very little blood, and a small quantity of air is required for its oxygenation. At length, hectic fever, or the fever of wasting and debility, steals gradually on, characterised by a sensation of chilliness towards evening, succeeded by a flushed cheek and burning heat of the hands and feet, with profuse morning perspirations: these symptoms are more marked in the advanced stage of the disorder, and are sometimes to such an extent as to make the patient dread going to sleep, without which the perspirations do not take place. The pulse varies much in particular instances, but when permanently quick it is pretty distinctive of the disease: where it does not rise above the natural standard, although other symptoms prevail, the disease is generally slow in its progress.

Dr. Watson relates a case of a patient who died of most marked tubercular disorder, where the pulse never exceeded sixty-eight beats in a minute.

Bowel complaint does not usually come on early, but when it occurs in those whose bowels are habitually costive, and is accompanied by the symptoms before mentioned, it is confirmatory of the disorder. The patient seems to melt away under the influence of the purging; hence it has been called colliquative diarrhœa: it depends for the most part on scrofulous ulceration of some part of the intestinal canal. The food not being duly digested and assimilated, affords little or no nourishment; this, accompanied by the diarrhœa and perspirations, causes wasting, which sometimes is one of the earliest symptoms. If, without any apparent cause, a person grows thin and weak, and his pulse be quick and his breath short, there can be little doubt of tubercular disease in the lungs or digestive organs. As the disease advances, the cough and difficulty of breathing become more urgent, the expectoration more abundant, the emaciation and weakness more considerable; thrush appears in the mouth, a peculiar hoarseness in the voice, mostly from ulceration about the larynx and windpipe; the legs become œdematous, and the hair falls off; the appetite often improves, and the patient flatters himself with the hope of recovery; but profuse diarrhœa, sometimes tinged with blood, and colliquative sweats, accompanied by a rapid pulse, usher in the fatal termination.

Consumption is a disease of the highest importance, whether considered in relation to the insidious nature of its origin and progress, or the selection and number of its victims. It sometimes steals on most slowly and imperceptibly, and is marked by slight and variable symptoms. One complains of mere debility, another of debility with slight emaciation, without any assignable cause, of great perspiration on making any exertion, or of constant headache; another of indigestion or diarrhœa; others, again, of spitting of blood, of slight hacking cough, or palpitation. At other times the disorder will start at once into activity after an attack of catarrh or cold. The greater number of consumptive persons die in the bloom of youth, when hopes are brightest, and the capacities for enjoying life in full vigour and maturity; and a greater portion of them are remarkable for the brilliancy and vigour of their mental facultiees; and many families have to mourn for the fairest and best of their members who have been hurried to an early grave.

The number who die annually of this disease in the united kingdom is about 70,000. A great deal has been said about the badness of the climate; but the records of the German, French, Italian, and other foreign hospitals, shew that consumptive cases are not less frequent in these institutions than in those of Great Britain. Consumption is found to depend on confinement, poverty, and vice; hence its frequency in densely-populated towns and manufacturing districts. Persons employed in manufactories, where ventilation is imperfect and the work continued for many hours in the day, and often in constrained positions, are rendered spiritless, pale, and emaciated. Under such circumstances, diseases of debility manifest themselves with tenfold effect, and we find consumption in the lungs, enlarged mesenteric glands, and chronic hydrocephalus.

Two very opposite kinds of personal sppearance are found in individuals of consumptive tendency: in the one, there is a fair skin, a florid complexion, fair hair, a light blue eye, with its pearly-looking, white, and tapering fingers; in the other, dark hair and skin, the latter dirty-looking, and a prominent upper lip. In both there is a sluggishness of the pupil of the eye, a not very sensible retina, and clubbed ends of the fingers, with curved nails.

Causes.—Among the most marked causes is hereditary predisposition or scrofulous habit; whatever tends to enfeeble the frame, produce a debilitated state of the constitution, or depress the vital powers, is likely to evoke this fearful malady in persons thus predisposed; such as mental anxiety, grief, disappointment, over-exertion, dissipation, deficient clothing, insufficient or unwholesome food, breathing foul or vitiated air, too intense application to study, and protracted disease of all kinds. Persons exercising particular trades, from the inhalation of irritating matters, are frequent subjects of consumption,—as needle-pointers, knife-grinders, stone-cutters, brass- and steel-polishers, miners and coal-heavers; where moisture is used in grinding, workmen live longer than dry grinders.

Although consumption is a constitutional disease, and generally arises from hereditary tendency, yet a disease similar in all its bearings may be generated by whatever deteriorates the general health, or produces a debilitated constitution.

Tubercular disease is brought on in wild animals by confinement, and in domesticated animals by being under- or ill-fed; and from the same causes the offspring of healthy parents may become consumptive. Dr. Graves says, that a man will often get consumptive from confiding too much in the purity of his blood; and that neglected coughs terminate in debility and consumption, because the patient was not apprehensive of any danger, from the circumstance that none of his ancestors had the slightest taint of phthisis; hence protracted disorder of the windpipe, by keeping up constant chronic cough, may be a cause of phthisis. Scrofulous pneumonia, and scrofulous bronchitis, may exist independent of any tubercular formation, and this is mostly the case in elderly people, where there are ulceration and abscesses, but no tubercles. There are other causes which tend to develope phthisis through the medium of the constitution, as debilitating and protracted fevers, particularly if there be any affection of the lungs; and patients so circumstanced are apt to fall into what has been called galloping consumption. The progress of consumption is checked by pregnancy; but after child-birth, on attempting to nurse, the symptoms commonly return in an aggravated form; nursing should therefore be prohibited in delicate females of consumptive tendency.

Consumption is not contagious or communicable to a person of a sound constitution. Suspicion to the contrary has been entertained in cases where an anxious wife watching the progress of the disease and death of her husband or a girl nursing her consumptive sister, have been some time after attacked with the same fatal malady: but in both these instances there have been strong exciting causes at work; as privation of rest, watching, confinement in a vitiated atmosphere, and protracted mental anxiety; and in the sister it is probable that some latent predisposition existed. As a general rule, however, it is not advisable for a healthy individual to share the bed or sleeping apartment of one labouring under pulmonary consumption.

The general distinctions between phthisis and chronic bronchitis may be thus enumerated: tubercular disease always occupies the upper part of the lung, chronic bronchitis the lower; the pain in bronchitis is always below the breast bone, in phthisis in the sides and in the space between the shoulders; in bronchitis, the cough is always accompanied by expectoration, in phthisis the cough is more frequently dry for a long time; bronchitis is not usually attended with wasting and emaciation, which phthisis invariably is: where there is still doubt, the spitting of blood is generally confirmatory of the latter malady. Both are distinguished from chronic laryngeal disease by the peculiar hoarseness of the voice, and by the pain caused on pressing the upper part of the windpipe or larynx.

Prevention.—It is certain that consumption often originates in hereditary predisposition; and it would be well for society if the propagation of the scrofulous habit could be checked by the avoidance of ill-assorted marriages. It is very desirable, therefore, that either families or individuals where scrofula exists should avoid forming an union with others having a similar disposition. Persons so affected should most seriously consider the misery they may otherwise entail on their offspring by inattention to this consideration. Intermarriages of blood relations, where the family may be subject to the disease, cannot be too strenuously objected to. Children born of parents who are unhealthy, whether from long-continued derangement of the digestive organs, gout, or any other disease inducing a debilitated state of the constitution, have generally a predisposition to consumption or other tuberculous disease. The earlier in life the means of correcting the hereditary tendency are adopted, the more successful will they be, they should commence with the birth of the infant, and be continued till it has reached maturity: under such circumstances the child should live on the breast-milk of a healthy wet-nurse till it has cut its incisor teeth. In more advanced life, the means must be such as invigorate the system and raise the standard of health generally; and to effect this, more benefit will be derived from attention to diet, air, and exercise, than from medicine. "Any one who wraps himself up and confines himself within doors, takes cold much more easily than the person who dispenses with superfluous covering, washes his chest daily with cold water, and rises early: habits such as these, with a good, nutritious, but not stimulating diet, are the best preventives of phthisis." (Graves.) The diet should be suited to the powers of digestion of the particular individual, and for the most part consist of fresh meat, fish, good beer, and milk; all slops should be laid aside. Milk is a kind of animal diet both nutritious and unstimulating; it may therefore form the staple food of those with whom it agrees, and who like it. The object is to sustain the patient's strength without exciting inflammation of the lungs. If there be a tendency to inflammation or bronchitis, the diet for the time must be antiphlogistic and spare; if on the contrary there is no such tendency, the more generous diet should be used. Debility, however induced, adds to the disease, more particularly that arising from insufficient nourishment. Early rising and early meals are advisable. When the weather permits, as much exercise out of doors as can be borne, short of fatigue, should be taken, in an open vehicle or on horseback; and no superfluous muffling should be used. The plan recommended by the late Dr. Stewart, of Glasgow, will be very beneficial; viz. sponging the chest and shoulders daily with vinegar and water, commencing with it warm, and gradually reducing the temperature till it can be used quite cold: this should be followed by active friction; subsequently the whole body should be treated in the same manner. The sleeping apartment should be capacious and well ventilated, the bedstead without curtains, and a mattrass preferred to a feather-bed. Persons remain a greater length of time in their bed-rooms than in any other apartment; its perfect ventilation is therefore of paramount importance. The continual respiration of impure air is one of the essential causes of scrofula.

"If there be entirely pure air," says M. Baudelocque, "there may be bad food, deficient clothing, and want of personal cleanliness, but scrofulous diseases cannot exist."

Although perfect ventilation may be secured in a house, we cannot change the external character of the air. Persons living in low, damp, or confined situations, rarely enjoy that degree of vigorous health which their constitution admits. Under these circumstances, an occasional change of residence, even for a short time, to a more elevated and drier situation and a more bracing air, will be the most effectual means of improving their health.

For the removal of the deranged state of health which precedes consumption, and thereby averting the disorder, a change to a milder climate is a powerful remedy, when aided by such other means as the peculiar circumstances of the case require; and previous to the change, the digestive and other functions, if out of order, should be attended to. When a change of climate is enjoined, the patient, Dr. Graves says, should not be sent to a climate resembling his own, but to one completely opposite; as to the East or West Indies, South Carolina, Florida, or even Egypt, where Clot Bey confirms the statement of Savary, that pulmonary diseases are almost entirely unknown. The south of France and coasts of Italy are scarcely sufficiently different; and the summer climate of the shores and islands of the Mediterranean are unsuitable for consumptive persons. It too often happens that removal to a milder climate is deferred until the disease has so far advanced that the change does not confer the benefit which it might have done; yet it may still be the means of improving the general health, of preventing inflammatory affections of the lungs, and of arresting the further progress of the malady.

There are some chronic cases where the disease appears to come to a standstill, in which a change of climate may be serviceable, when aided by a careful avoidance of everything likely to produce fulness, or renew the inflammatory irritation of the lungs. In these cases, life may be prolonged many years; but the work of reparation requires time. Should migration be determined on, due consideration should be had as to how far the patient may be enabled to bear the fatigues and exposure of a journey by sea and land, and the accidents that may occur, lest after all he may arrive in a foreign land only to die. When consumption is fully established, little benefit is to be expected from change of climate, and the invalid had better select the most favourable residence in his own country; and in the more advanced cases it requires some consideration how far he may derive advantage by changing his own residence among his family and friends for incommodious lodging among strangers: also much may be done to alleviate his sufferings by confinement to apartments well ventilated, and kept at a regular temperature during the colder seasons.

With regard to climate, its suitableness will depend much on individual peculiarity. Sir James Clarke says, "For consumptive invalids in whom there exists much sensibility to keen winds, and more especially if immediate vicinity to the sea-coast is known to disagree, Rome and Pisa are the best situations for a winter residence. When, on the contrary, the patient labours under a languid, feeble circulation, and is of a relaxed habit, and disposed to congestion or to hæmorrhage, and particularly if the sea-air is known to agree, Nice deserves the preference. Where, however, the digestive organs are faulty, and there is a disposition to bronchitic cough, with a dry skin, accompanied with much nervous sensibility, Rome and Pisa will agree better."

Of all climates, the most generally suitable to consumptive patients is that of Madeira, which has the advantage over most others, that patients may remain there the whole year: next to it come Teneriffe and the Azores. A moderate range of temperature is of advantage, and a long residence in a very mild and sheltered spot is not suitable to young persons with a consumptive tendency: an occasional change is beneficial; and sailing (or even a sea-voyage, where it is agreeable) has a soothing effect.

"The winter climates in England most favourable to consumptive patients are those of Torquay, Undercliffe, Penzance, Clifton, and Hastings. For persons of an inflammatory constitution, and subject to dyspepsia, Torquay and Penzance are most suitable, while they disagree with those of a relaxed habit, and for these Clifton and Undercliffe are to be preferred."—(Hastings, St. Leonard's, and the western end of Brighton, are intermediate.)—"In many cases, passing the winter at Torquay or Penzance, and the spring at Clifton, will be more advantageous than continuing the whole season at either; and during the summer months a frequent change of residence will be beneficial." (Clarke on Climate.)

Riding on horseback is much to be commended during the earlier stage of the disease,—indeed, it is beneficial at all periods where it is suitable to the patient: its great advantage arises from its allowing the enjoyment of fresh air and exercise without affecting the breathing. It is affirmed that many phthisical patients are free from cough, and that those affected with hæmoptysis cease to spit blood, so long as they continue to take exercise on horseback. Riding in a carriage, or sailing in a boat, has the same good effect, but in a less degree. Sydenham considered horse exercise as a specific in consumption.

Under all circumstances, the rules before laid down as to diet, air, exercise, sponging, and friction, should be carefully attended to; and where it may not be possible to take exercise in the open air, it should be taken on a spring-board at regulated times during the day.

THE MEDICINAL TREATMENT.—Where, at the commencement, the cough is variable, baffling, and sometimes trifling, we must refer to catarrh (see Cold), it being always borne in mind that in those phthisically disposed the tendency is to emaciation and weakness. Pains in the chest will be relieved by counter-irritants, such as bran- or mustard-poultices, stimulating liniments, as those with preparations of lytta or nitro-muriatic acid (Nos. 136-7-8), blisters, and tartar-emetic ointment. Dr. Graves says, in some cases much good may be effected by the insertion of issues or setons in the chest; but this should not be done without due consideration, as they are unpleasant remedies, and should only be had recourse to where there is a family predisposition to consumption. I recommend at the same time a nutritious diet, which is of advantage where there is an outlet of matter from the system. For the night sweats, which are the result of debility, the dilute sulphuric acid, with some light tonic and henbane, will be useful, as—

Take of Infusion of Peruvian or Cascarilla Bark, 4 ounces,
Tincture of Hyoscyamus, 1 drachm,
Dilute Sulphuric Acid, 1 drachm.
Mix. A fourth part to be taken three times a-day.

As the disease advances, and the cough becomes more troublesome,

Take of Sulphate of Quinine, 3 grains,
Dilute Sulphuric Acid, and Tincture of Henbane, each one drachm,
Syrup of Poppies, half-an-ounce,
Water, sufficient to make six ounces.
Mix. Take a table-spoonful every three hours.

In spitting of blood, the following:—

Take of Muriated Tincture of Iron and Tincture of Henbane, each one drachm,
Decoction of Iceland-moss, six ounces.
Mix. Take two table-spoonfuls three times a-day.

Where the bowels are relaxed, the compound steel mixture, in combination with the compound chalk mixture, is very useful: a table-spoonful of each, mixed, may be taken three times a-day; or the steel mixture may be given in more moderate doses, so that it may be borne on the stomach; where the diarrhœa is inveterate, the compound powder of kino may be given, and an opiate enema administered at bed-time. Cod-liver oil is certainly one of the most beneficial remedies, and may be alternated with the preparation of iron before mentioned: it is highly nutritive, and while taking it, patients become stouter and of healthier aspect, feel stronger, and often lose their night perspirations, which will recur on its being left off; it generally nauseates after a time, and should therefore be alternated with some other tonic; it may be taken in doses of a dessert- or table-spoonful (beginning with the lesser dose, or even a tea-spoonful) three times a-day, in orange wine, milk, or cocoa, or with twenty drops of dilute nitric acid in a glass of water. The most appropriate time to take it is half an hour or more after meals; it is then better borne on the stomach, and is not so likely to cause nausea. Together with these remedies, the sponging at night with tepid water and vinegar will be refreshing, and should not be neglected. Where the cough is distressing, the mixture of hydrocyanic acid (No. 80) may be taken, and at bed-time one or two tea-spoonfuls of paregoric elixir (the compound tincture of camphor) added to the dose to procure rest, or instead of the paregoric some of the preparations of morphia. Where the bowels are costive, the confection of senna, or the aperient cough pills (No. 73 or 105), or an aperient lavement, may be had recourse to. In cases of irritable stomach, the application of two or three leeches to the pit of the stomach, and after their removal a warm bran poultice, or occasionally a small blister, will be useful; a saline draught in a state of effervescence, or swallowing gradually small lumps of ice, will impart a degree of tone to the stomach; or the mixture of creosote (No. 117) will tranquillize it.

It has till recently been considered that consumption always went on to a fatal termination; but this assumption is now disproved, and the successful termination of the disease in its early stages is by no means an unfrequent occurrence. (See observations by Drs. Bennett and Quain, in vol. xvi. of *Ranking's Half-yearly Abstract of Medical Science,* and in vol. xxv. *Braithwaite's Retrospect of Medicine.*)

CONVULSIONS.

Convulsions are violent and involuntary contractions of a part or the whole body, commonly accompanied with alternate relaxations, called clonic spasms; at other times with rigidity and tension, called tonic spasms. When the relaxations are very slight and very rapid, the term tremor is applied; when universal all the limbs are more or less affected, as are the muscles of the face and those of respiration,—as in epilepsy and hysteria and in the convulsions of children. The tonic convulsions occur in lock-jaw. Partial convulsions affect several muscles irregularly, as in St. Vitus's Dance (chorea).

A convulsive fit varies much in its mode of attack, as well as in its progress. Sometimes it is sudden, and without any warning; but more commonly there are certain symptoms or sensations indicative of its approach, particularly in those who are subject to its recurrence. These symptoms are coldness of the extremities, giddiness, the appearance of objects floating before the eyes, tremblings, and a creeping or aura passing up a limb or the back. The struggle varies in extent, violence, and duration; the muscles are alternately rigid and relaxed; the teeth chatter; and the tongue is often protruded and bitten; there is foaming at the mouth; the eyelids open and close, and are in perpetual motion, or are stretched open in a full stare, while the protuberant balls roll rapidly in every direction, and the whole face is hideously distorted. The force exerted in some cases is exceedingly great, so as to overpower the strength of several attendants, and in other instances so violent as to break a bone, and often a tooth. When the lungs are much oppressed, the lips and cheeks, and the entire surface of the face and arms, become purple. A paroxysm will sometimes last for a few minutes only, on other occasions for several hours; and after a short period of tranquillity will return with an equal degree of violence. This often happens in infantile, puerperal, and epileptic convulsions. An extreme degree of languor usually follows; at other times headache and giddiness; but now and then no symptoms at all of derangement succeed.

Convulsions are named from the period of life at which they occur, as infantile; or from the cause, as hysterical, epileptic, puerperal, or apoplectic.

Causes.—The causes of convulsions in infants are dentition, affections of the brain, or irritation of the bowels, in consequence of improper feeding. The appropriate remedies for the last will be the removal of the offending cause by purgatives, as castor oil, calomel, and rhubarb, or enemas, and suitable feeding; for the first, lancing the gums over the approaching tooth or teeth; for the third, see Hydrocephalus.

For the causes of hysterical, puerperal, epileptic, and apoplectic convulsions, see those diseases.

Some of the narcotic poisons, as opium, prussic acid, mushrooms, many indigestible substances, and ardent spirits, cause convulsions. The remedies here would be emetics—as of sulphate of zinc or copper—volatiles, and stimulants. Affections of the mind, as excess of anger, joy, grief, or fear, may cause convulsions, and they often supervene in protracted diseases; as in dropsy, jaundice, and fever.

In the majority of cases of convulsions there is compression of the brain, the blood-vessels of the face and scalp appear loaded, and probably a similar state of the blood-vessels exists within the skull: in such cases bleeding should be had recourse to, more particularly if the patient be of a full habit, and cupping from the nape of the neck will be the best mode; or a stream of cold water may be directed on the head, and the patient kept in the sitting or upright position. Where, on the contrary, there is no evidence of fulness of the head, and the individual is pale, weak, and nervous, a mustard foot-bath and stimulants, such as volatile alkali, valerian, and assafœtida, are to be employed, and the recumbent posture observed, with the free admission of fresh cold air.

Treatment during the fit.—For a child a warm bath is the most immediately available remedy. The water should be at the temperature of 98°, and if the child be of full habit it should be immersed as high as the waist only, but if delicate and pale, as high as the neck: in either case the immersion should be continued a quarter of an hour, and cold water should be affused on the head, and if there be much evidence of fulness, iced cold water poured upon the head in a small stream, while the rest of the body is preserved warm. It is a good plan, while the bath is preparing, or during immersion, to administer a domestic enema, which will mostly relieve the bowels of any irritating matters or flatulence. On being taken out of the bath the child should be placed in a warm blanket, and the head kept in an elevated position, and the gums, if requisite, may then be lanced, or purgatives administered. In cases of fulness of the head, characterised by flushed face, red eyes, and florid scalp, and should stupor remain, abstraction of blood by leeches is advisable, the quantity being proportioned to the age. Dr. Graves remarks, that applying them to the temples often aggravates cerebral symptoms, and that the best place to apply them is behind the ear, or on one side of the neck, "because we are thus enabled to promote the flow of blood when the leeches fall off, with less annoyance to the patient than if they had been applied on both sides." Where the child is pale and feebe it should be laid tranquilly in bed; two, three, or four drops of sal-volatile being given in milk and water now and then, and mustard poultices applied to the calves of the legs or feet. The after-treatment must depend upon the cause and circumstances of the case. When convulsions occur in an adult the same principles are to guide us in the treatment as in the case of the child, but as the warm bath is not so readily available, cold water in a stream is to be applied to the head, and a warm foot bath and mustard poultices used. If the convulsion arises from drinking spirits or from taking any poisonous matter, or from indigestible food, an emetic of sulphate of zinc or copper should be given, as before mentioned, or the stomach pump made use of. In the event of intoxication cold water is a powerful remedy to procure relief. If there be congestion on the brain, the abstraction of blood by leeches or cupping will be advisable, and an active aperient of calomel and jalap should be given: the subsequent treatment must be governed by the peculiar nature of the case (See Apoplexy, Epilepsy, &c.)

CORNS.

A thickened state of the scarf skin, caused by pressure or friction, and mostly on the toes, from wearing tight or ill-fitting shoes: the part of the skin acted upon becomes hard, and presses upon the sensible skin within, which, endeavouring to relieve itself, produces an additional quantity of scarf-skin. The corn when formed has a conical shape, the base being outside and the point within, pressing into the true skin, and exciting considerable pain, and sometimes inflammation to such an extent that abscess forms at the point or root.

The treatment consists in relieving the part from pressure by wearing shoes that are not tight and fit well; the foot should be soaked in warm water, which softens the corn, and then the hardened surface removed with the finger-nail or a pen-knife, taking care not to wound the true sensitive skin. The outer surface being all pared away, a small white hardened spot will be perceived in the centre, which is the point of the corn; this is to be carefully dug out by the scissors or knife, without giving pain or causing the surrounding part to bleed; over the sound part thick buff leather corn-plaster, with a hole in the midddle, is to be applied the hole being over the excavation left by the root of the corn, which will thus be defended from pressure. If the root is not completely removed, or is very irritable, it may be touched every two or three days with a pointed piece of lunar caustic, which will allay the irritation, and eventually destroy the corn. Should inflammation have been excited by the attempt to remove the corn, a warm poultice made with Goulard-water and finely crumbed bread should be kept on for a few days, and the leg laid up. Various other domestic remedies are used; such as touching the corn with acetic acid every night, and smearing it in the morning with some olive oil.

Soft corns form between the toes, and are very troublesome and painful. The soft, dead skin should be cut with scissors, and lint moistened with Goulard-water applied. A peculiar kind of corn is sometimes formed under the corner of the nail of the great toe; it may be seen by slightly raising the nail; the corn should be turned out, and the part touched with lunar caustic.

The scarf-skin on the palms of the hands and inner surface of the fingers frequently become hardened and bumpy from friction: these have been improperly called corns, but they have no root, and are not painful; they are better not interfered with.

Costiveness (Constipation).

An undue retention of the fæcal contents of the bowels, in which they are unusually hard, and expelled with difficulty, and sometimes with pain. Costiveness is not always a disease; for many persons in robust health, who work hard and perspire freely, are accustomed to have their bowels emptied not more than twice a week. The state of the bowels depends in a great degree upon habit and constitution; for that which would be considered as constipation in one person, would not be so in another. As a general rule, the bowels ought to be relieved thoroughly once in twenty-four hours. Where sluggish bowels are accompanied with a perfect state of health, it is in vain to interfere with them; where, on the contrary, with the torpid bowels, there are head-ache, languor, distension of the abdomen, fœtid breath, and furred tongue, such a state is not compatible with health, and therefore should be corrected.

Causes.—Costiveness may depend on a variety of causes; as deficient exercise or sedentary habits, more particularly if combined with great mental occupation,—hence the studious suffer; too copious perspiration by the skin, in which perhaps the absorbents of the bowels act unduly, whereby the fæcal matter is deprived of moisture and becomes indurated; a stimulating diet, which sometimes tends to constringe the bowels; or perhaps taking a small quantity of fluid compared with the solid substance; or the diet may not be sufficiently stimulating; or there may be a want of bile, or a depraved condition of it. The bile, with the contents of the small intestines, furnish the natural stimulus to their peristaltic movements, and the excrement excites the larger bowels. The fæces are forced onward by the peristaltic action of the intestines; whenever, therefore, this action is weakened, as by a loss of tone in their muscular fibres, there must be an accumulation of fæces. Inattention to the regular calls of nature to relieve the bowels is a very common cause of constipation, in females particularly, and not unfrequently so in men, who are very anxious or energetic in the pursuit of business: by this, the intestines become insensible to the natural stimulus, and eventually lose their tone or contractile power from over-distension; or lastly, there may be some structural change, as narrowness of the passage, or stricture of the lower part of the intestinal canal.

Treatment.—There is no bodily deragement more frequently mismanaged than habitual costiveness. Except in cases of individual peculiarity, a constipated state of the bowels is not compatible with the enjoyment of health, or activity of mind and body, and unless attended to in time, it is very likely to be the precursor of some serious constitutional mischief. It is for the most part to be obviated by attention to diet and regimen, and the observance of certain and regular periods of soliciting motions, and where these fail, having recourse to aperients.

First, as to Diet.—The articles of food should not be too concentrated, as the coarser and excrementitious portion assists in stimulating the action of the bowels. The food should consist of a due admixture of meat and vegetables for dinner, with water, light malt liquor, or occasionally spruce beer, for drink, and, for those who drink wine, as a general rule the white wines are preferable in costive habits to port. The vegetables should be well dressed, and the food taken slowly and well masticated, and not mixed at every mouthful with fluid to facilitate its being swallowed; thus begetting the pernicious habit of bolting. Breakfast should consist of well-baked bread or dry toast (brown bread or bread made with equal parts of rye and wheaten flour is more aperient); a moderate quantity of butter, honey, fish, or bacon, is allowable; cocoa perhaps is preferable to tea or coffee; and porridge, made with Scotch oatmeal, perhaps is better still. Regular exercise, either by walking or on horseback, should be taken, as it keeps all the secreting functions in due activity, and assists by the mechanical motion which it produces in the intestines; the same effect may in some manner be caused by active friction on the abdomen; and change of scene and change of air will often act beneficially by inducing a new train of actions.

Where the afore-mentioned means fail, half a pint of cold water drunk the first thing in the morning will often answer, or an enema of a pint of water daily is the most simple remedy; but as some persons have a most insuperable objection to clysters, a small quantity of some laxative may be taken in the form of pill at meal time, as immediately before or during dinner, when it mixes with the food: a much smaller quantity of aperient medicine will act, taken in this way, than in any other: it should be just as much as will suffice to effect what nature neglects to do, and no more; as two or three grains of rhubarb, or a grain of aloes (see Pill, No. 12), or from two to five grains of compound rhubarb pill. Where the torpidity of the bowels is accompanied with debility, the pills (No. 24), or electuary (No. 25), will be appropriate. In those of sanguineous and florid habit, the following saline aperient will be beneficial:—

Take Common Table-salt, Sulphate of Magnesia (Epsom Salts), Sulphate of Soda (Glauber's Salt), of each two drachms; dissolve in a quart of water. Mix. Take half-a-pint every morning before breakfast.

Or half a Seidlitz-powder. The worst of saline aperients is, that when constantly taken they enfeeble the stomach and increase the tendency to constipation. Many persons are accustomed to take a blue pill or calomel pill, followed by a black dose at regular intervals, to have a good clearing out as they call it: the custom sooner or later causes a degree of nervous irritability or hypochondriacism. Dr. Graves says, it is quite incredible what a number of persons are in the habit of taking the above preparations, and that they are slowly poisoned without the obvious symptoms of mercurialization being produced. It is much easier, and infinitely safer and better, to keep the bowels in regular action by careful attention, than to excite them to it by drastic purgatives, when they become thoroughly torpid. It too often happens that the doses of magnesia, rhubarb, aloes, &c. require increasing. Castor oil is the only remedy that admits of being gradually decreased, till at length a very few drops taken daily will suffice, and at last it may be quite left off, or taken only occasionally "When there is an objection to clysters, and medicine nauseates, the abdomen may be regularly rubbed with either of the following liniments:—

Take four parts of Castor Oil,
One part Tincture of Jalap, Aloes, or Rhubarb.

Mix. To be diligently rubbed over the region of the stomach every morning, before the patient rises: it should be done under the bed-clothes, lest the unpleasant odour should sicken the stomach" (Graves).

Or,

Take of Croton Oil, half a drachm,
Olive Oil, one ounce.

Mix, for a liniment, to be used night and morning.

The dilute nitric acid, in doses from half a drachm to a drachm, taken twice or thrice a-day in a cupful of weak ginger or dandelion tea, has an excellent effect; it seems, like the carbonate of iron, to combine tonic with aperient properties.

Long-continued and repeated attacks of constipation cause great distension of the intestines, and where there is an accumulation of fæces it is sometimes mistaken for enlargement of the liver, being accompanied by the same symptoms and with bilious aspect; in others it is mistaken for bilious colic, and not unfrequently for sciatica, where the retention is in the lower part of the colon or rectum, pressing on the sciatic nerves. The remedies are copious and repeated injections, and the pills (Nos. 34 and 35), till relief is obtained. Where there is confinement and contraction of the lowest intestine or rectum, the daily application of the rectum bougie, or of a moderate-sized wax candle, dipped for a moment in warm water to render it flexible, and well smeared with lard or mecurial ointment, is advisable; it should be passed up the bowel gradually to the extent of three or four inches, and be allowed to remain some time: this is best performed by a surgeon, and it will often effect more, in many varieties of costiveness, than all medicine; due regard being had at the same time to diet and exercise,—which after all are the great and grand remedies for the disorder.

Cow-pox

Is a disease affecting the cow, which, when communicated to the human subject, confers in most cases freedom from the attack of small-pox; and where it does not afford complete protection, renders the attack of that severe disease comparatively mild.

In many of the dairy countries it had been long known that the cows were liable to an eruption on their paps or udders, which was occasionally communicated to the hands or arms of those who milked them, producing an ulcer and some degree of fever; and it had been observed, by the people of those counties, that such as had passed through this disease, known by the name of cow-pox, were not liable to the small-pox.

It is to the philosophic mind of Dr. Jenner that mankind is indebted for maturing into a rational and scientific form, the principles of rendering this great boon beneficial to the human race. Dr. Jenner ascertained, on inoculating several persons with small-pox matter, who had previously had the cow-pock eruption, that they were not susceptible of the disease. At length he found that, by transferring the virus of cow-pox from one human being to another, he should be enabled to prevent the propagation of small-pox; and thus he hoped that this perilous distemper would be annihilated. During his enquiries, he found that some of those who had their hands sore from milking, were still susceptible of small-pox; and, on further enquiry, he discovered that the teats of cows were liable to different kinds of eruptions; by continuing his observations he ascertained which was the peculiar eruption that produced in the human frame the protecting disorder; and also that it was essential that the virus should be used in a limpid or transparent state, and not after matter was formed, and that its protecting or non-protecting influence depended upon the stage the disease had attained in the animal at the time it was communicated to the human attendant. Dr. Jenner eventually "clearly demonstrated that when the human subject was properly inoculated with virus taken from the cow-pock vesicle at the proper stage of its progress, and when in consequence of that inoculation the disease was regularly produced and went through its proper stages, both locally and constitutionally, the individual thus affected was thenceforth all but certainly protected from the contagion of small-pox."

The benefit conferred on mankind by the discovery of vaccination (or the inoculation with cow-pock virus) as a preventive of small-pox, being now universally admitted, the legislature has wisely enacted that every child shall be vaccinated within three months from its birth; there is therefore every reasonable prospect that the loathsome and too frequently fatal small-pox will be destroyed in the united kingdom.

To obtain the full benefit from vaccination, there are several circumstances necessary to be attended to. 1st. That the child to be vaccinated should be free from fever and any eruptive disease. 2nd. That the lymph employed should be taken from a decidedly characterised cow-pock vesicle, which is proceeding regularly through its respective stages. 3rd. That the lymph is more certain of producing the disease if taken between the fifth and tenth day: after this, the virus becomes diluted with serum, or otherwise so changed as to become useless or noxious.

It is always better to vaccinate from a fresh arm if possible; where this cannot be done, the lymph or virus may be procured either on small thin-pointed slips of ivory, called generally ivory-points, or between two pieces of glass; and the earlier it is used after being taken from the arm, the greater is the probability of its success. Lymph, however, may be preserved for a considerable time, or sent abroad, provided the points are well charged and quickly dried, or the glasses well covered with lymph, and both carefully kept excluded from the air by being wrapped in oiled paper. The scabs well dried and kept in a well-stoppered phial, will answer, but are by no means so certain: when used, they require to be rubbed down with a little water, and the solution applied liberally to the punctured or scarified part. Having selected a well-formed vesicle, at the eighth day two or three punctures should be made into it, a little above the base, with a sharp lancet, by which the cells contained in the vesicle will be pierced, and the lymph will exude. The skin of the arm to be vaccinated should be rendered tense, and the lancet charged with lymph introduced obliquely into it, so as to draw a single drop of blood . two or three insertions should be made in each arm. If the lymph be on glass, it should be moistened with the vapour of warm water, and scraped off on the point of the lancet : if ivory points be used, the tips should also be moistened, and one introduced into each puncture made in the arm and allowed to remain a few seconds, and then turned so as to insert the lymph. If the operation has been successful, the progress will be as follows: on the second or third day small red spots will appear where the virus was inserted, and will feel slightly elevated, becoming gradually larger on the following day; on the fifth day a circular pearl-coloured vesicle is formed, filled with a transparent fluid contained in small cells ; the vesicle increases in size and circumference on the sixth and seventh days, and is somewhat depressed in the centre; on the eighth it has attained its full magnitude; on the evening of this day it begins to be surrounded with a rose-coloured margin, called areola, which gradually spreads to some distance on the ninth and tenth days, and the part is tense and painful: the colour becomes deeper, and at length fades, leaving a degree of hardness for a few days, and a brown, circular, thin crust forms over the vesicle, which afterwards assumes a black colour, which is usually detached or falls off about the twentieth day, leaving a cicatrix, which should be of moderate size, slightly depressed, and marked with radiations and indentations, presumed to correspond with the cells of the vesicle.

Until the eighth day, the constitution does not appear to sympathise; at that time there is usually some degree of restlessness, with a hot skin and disturbed nights. This febrile state lasts for two or three days, and is analogous to the secondary fever of small-pox: it is satisfactory, as it indicates the fulfilment of the desired protection. This secondary fever is sometimes so trifling as scarcely to be observable.

It is of much moment to determine whether the cow-pox has run its proper course or not, as it is not always possible to say to what extent the vesicle may vary from what has been described, without failing of its protecting influence. Mr. Boyce, of Edinburgh, suggested two means to be resorted to in order to ascertain this point: 1st, that a second vaccination should be performed on the fifth day after the first, when, if the constitution has been properly affected by the first vaccination, a vesicle will arise, surrounded with an areola, nearly as early as the first, and will proceed so much more rapidly than usual, that it will be at its height, and will decline and disappear, as soon as the first, the vesicle and areola being smaller. In short, the second will resemble the first in miniature. Should the first vaccination not have been sufficient to protect the system, the second will run its course, its effects increasing up to the eighth day. 2ndly, if a second operation be performed any time after the twelfth day from the first, some degree of inflammation will be induced; but if the system be protected, no regular vesicle will follow. Inoculation with the virus of small-pox, he adds, will be the most satisfactory test.

It is of some importance that several punctures be made —two at least in each arm—at such a distance from each other that the vesicles do not run together.

Mr. Marson says, it is very rare that a patient comes into the Small-pox Hospital after alleged vaccination where there is more than one cicatrix: hence it is inferred that the constitution has not been sufficiently impregnated with the vaccine disease.

Some children are slightly disturbed in their general health throughout the whole course of vaccination; others do not appear to be constitutionally affected, although the areola be extensive and the formation of lymph abundant.

It is not uncommon for the body of the child to be covered with a papular eruption from the ninth to the twelfth day, or even later; and occasionally, but rarely, minute vesicles are formed. This eruption often causes great anxiety to the parent, from a fear of small-pox making its appearance; it is quite an accidental occurrence, chiefly attributable to the delicacy of the child's skin and fulness of habit, and is a strong evidence that the cow-pox has taken effect on the system, but it is not essential to the success of the process.

About the fourteenth day after vaccination it is advisable to give the child some mild aperient, which may be repeated once or twice after an interval of two days.

CRAMP

Is a sudden, involuntary, and extremely painful contraction of a muscle or muscles, in which the muscular fibres are drawn up in hard, knotty lumps: this condition is of variable, but mostly of short, duration, and is principally seated in the voluntary muscles, as those of the legs and arms. Where it affects the involuntary muscles, as those of the chest, stomach, and abdomen, the term *spasm* is used; which see.

The causes of cramp are, the presence of indigestible food in the stomach, or of acrid matters or worms in the intestinal canal; overloaded bowels, or the gravid womb during pregnancy, or the child's head during labour making pressure on the nerves of the lower extremities; sudden exposure to cold or the prolonged application of cold, as in bathing; and over-stretching the limbs. When cramp affects the arms and fingers, it sometimes is connected with disease of the heart or large blood-vessels.

Treatment.—The most ready remedy is friction with the hand and warm flannels, or with the opiate liniment. It is generally expedient to take a dose of rhubarb and magnesia with some sal-volatile or tincture of ginger, or, where the bowels are loaded, a more active aperient, as the compound senna mixture, assisted by the administration of an enema, and to preserve a regular state of bowels during pregnancy by the mild aperient pill (No. 42 *a* or *b*), or an occasional dose of castor oil. Cramp of the calf of the leg is sometimes speedily relieved by putting the opposite muscles into action, which is done by bending or drawing up the foot on the ankle, or by tying a garter or band tightly round the limb between the affected part and the body, or by making pressure with the heel on the hearth or some cold firm substance.

CROUP.

Inflammation of the membrane lining the trachea or upper part of the windpipe, frequently extending upwards to the larynx, and downwards to the bronchia. Children from one to three years of age are the most liable to it; it rarely occurs to any one after the age of puberty or before the attainment of the first year.

Symptoms.—Croup comes on usually with symptoms resembling a common cold (or catarrh), creeping on imperceptibly with a dry cough, accompanied by hoarseness and wheezing, the child often applying its hand to the throat, and pinching up the skin; there is rattling in the throat during sleep, and restlessness; the difficulty of breathing is attended with a peculiar sonorous inspiration, as if of air passing through a metallic tube; there is difficulty of speaking, the patient making a sound like the crowing of a roupy cock, sometimes a total loss of voice: these symptoms may go on for a day or two, when, and mostly at midnight, a violent paroxysm will take place, characterised by great restlessness, hot skin, flushed face, quick and vibrating pulse, extreme anxiety, and agitation of the whole frame, followed by profuse perspiration, protrusion of the eye-balls, with a convulsive struggle to renew the respiration, frequent clanging cough, which is then accompanied with an expectoration of a viscid phlegm, and sometimes of flaky matter; the effort to get rid of this often seems to threaten strangulation. Towards morning the symptoms decline, and the child exhausted falls asleep, and perhaps brightens up during the day; but unless the disease be relieved, all the alarming symptoms of suffocation, anxiety, and distress, recur at midnight, and go on from bad to worse; the obstruction to the passage of air is increased, perhaps by spasm of the glottis, the skin assumes a dusky hue, the blood not being duly oxygenated, the pulse becomes irregular and feeble, the head is thrown back in order to enable the air the better to pass down the blocked-up windpipe, the nostrils are in perpetual motion, the face is puffed and the countenance of a pale leaden hue, the eyes sink and are covered with a film, and the child throws about its arms or seizes its throat more violently, as if to remove the painful respiration; drowsiness then comes on, and the breathing is interrupted, gasping, and convulsive, and death closes the painful scene. There are now and then intervals of comparative ease, alternating with paroxysms of obstructed respiration, threatening and sometimes causing immediate suffocation. On some occasions a child will have a croupy cough for several nights in succession before an attack of the formidable paroxysm occurs, and this is apt to lull the parents and attendants into a state of fatal security, and put them off their guard. On other occasions, a child will go to bed apparently well, and be aroused at midnight by a violent, and sometimes fatal, paroxysm, without any preliminary signs of the disease.

Causes.—It would appear as if there was an hereditary disposition to the disorder in some families: it will more commonly attack children of the same family in succession. It is most frequent in cold damp situations on the sea-shore, where it occasionally prevails epidemically. Croup is distinguished by the peculiarity of the breathing, hoarseness, and cough. The cough of children is not usually accompanied with hoarseness: when it occurs, therefore, persons should be on their guard, and keep a watchful eye upon them. Favourable symptoms are—the cough becoming loose, with free expectoration, the distress of breathing declining, a moist skin, and a softer and slower pulse: these afford ground for hope. Unfavourable—when the lips become blue, the skin loses its warmth, the pulse, already feeble, intermits, the voice is more acute, and the little patient drowsy and lethargic:—in such a case death may be expected.

Treatment.—Where croup is threatened, and cough and cold are accompanied with hoarseness and loss of voice, it is advisable to arrest it at its onset. Let the child be confined to the house in well-aired rooms, and the stomach and bowels cleared with a dose of calomel proportioned to its age; this should be followed in an hour by a solution of one grain of tartar emetic in an ounce of water, of which a tea-spoonful or two should be given every quarter of an hour till vomiting is produced: if the bowels are not acted upon also, a spoonful of the compound senna mixture, or from five to ten grains of the compound scammony powder, should be given, a mustard poultice, and afterwards hot bran poultices, applied to the neck, and the child kept on a spare diet, and the general health attended to till the hoarseness disappears. The most speedily fatal cases are those where the child goes to bed apparently quite well and not labouring under any catarrhal symptoms, and is awakened from a deep sleep by an attack of croup. Such cases often prove fatal in twenty-four hours. "Even when thus intense," Dr. Graves says, "the disease may be arrested in its progress by the adoption of the treatment recommended by Dr. Leman of Torzan: viz. the immediate application of hot water in the following manner:—A sponge, about the size of a large fist, dipped in water as hot as the hand can bear, must be gently squeezed half dry, and instantly applied under the little sufferer's chin over the larynx and windpipe: when the sponge has been thus held for a few minutes in contact with the skin, its temperature begins to sink: a second sponge heated in the same way should be used alternately with the first. A perseverance in this plan during ten or twenty minutes, produces a vivid redness of the skin over the whole front of the throat, just as if a strong sinapism had been applied: this redness must not be attended or followed by vesication. In the meantime the whole system feels the influence of the topical treatment; a warm perspiration breaks out, which will be encouraged by warm drinks, as whey, weak tea, &c., and a notable diminution takes place in the frequency and tone of the cough, while the hoarseness almost disappears, and the rough, ringing sound of voice subsides, along with the difficulty of breathing and restlessness; in short, all danger is over, and the little patient again falls asleep, and awakes in the morning without any appearance of having recently suffered from so dangerous an attack. I have repeatedly treated the disease on this plan, and with the most uniform success. It is, however, only applicable at the very onset of the disease, but it has the advantage of being simple, efficacious, and easily put in practice, and its effects are not productive of the least injury to the constitution."

When the disease is fully developed, the safety of the patient will depend on the vigour and promptness of the means employed: the most anti-inflammatory measures must be had recourse to: first, by the application of leeches to the throat, two to a child of one year old, and one for every additional year to the extent of six, provided the child be robust; if delicate, a lesser number must suffice. The solution of tartar emetic, as before recommended, may now be given to cause full vomiting. Full vomiting has often a marked beneficial effect, by promoting expectoration, and often causing shreds of the effused substance which lined the windpipe to be thrown up. The child may now be enveloped in a blanket wrung out of hot water for ten minutes, rubbed dry and put to bed. The violence of the disease is by the foregoing treatment sometimes arrested, and nothing more than a purgative required. A most watchful eye must be kept on the patient. If there be still difficulty of breathing, indicating bronchitis, a blister should be applied to the upper part of the breastbone, a grain of calomel with two of James's powder should be given every two or three hours till the breathing is relieved, or the stools appear like chopped spinach: a child above two years may have two grains of calomel. Should there be a return of the croupy paroxysm, more leeches may be applied, if the child will bear them; but at all events, full vomiting should be again excited with the solution of tartar emetic. Vomiting may be reproduced a third or a fourth time, at intervals of two hours, if required. Where extreme feebleness, bordering on exhaustion, ensues, a teaspoonful of the following mixture may be given now and then to rouse the patient:—Take eight grains of the sesquicarbonate of ammonia, or half a drachm of sal-volatile, or a drachm of brandy, and an ounce of water: mix. In very obstinate cases, ten minims of laudanum may be added to the mixture, and mustard poultices applied to the calves of the legs and feet. If the child become cold, and appear sinking, white wine whey may be given with the ammonia mixture. During the treatment, the child is to be supported by barley-water, thin animal broths made of chicken or veal; the temperature of the apartment should be kept moderately warm and moist by vessels filled with hot water. Children often recover from such apparently hopeless states as to render it imperative on those attending them to persevere in the appropriate means of relieving them to the very last. Should the disorder be subdued, considerable feebleness remains, resulting both from the disease itself, and the necessary treatment that has been resorted to. For this, a more nourishing diet should be gradually allowed, some light tonic medicine given, as the bitter infusion, or small doses of quinine, and fresh air be fully admitted into the room.

As a last resort in bad cases, the operation of tracheotomy has been in some cases successfully performed by surgeons; but this we need not enlarge on here.

Croup, Spasmodic ; Child Crowing.

This disorder, *croup-like convulsion of children*, is characterised by a remarkable spasmodic crowing inspiration coming on suddenly, without any symptom indicative of its approach ; between each effort to draw the breath, a squeaking noise is made ; the head is mostly thrown back, and the eyes staring ; and the child is in great distress, labouring for breath. If the fit be of long duration, the face and extremities become purple ; at length, after a severe struggle, expiration ensues, succeeded by crying, and the little patient, much exhausted, sinks into the nurse's arms, and often falls asleep.

In this complaint the thumb is generally clenched firmly in the palm of the hand ; sometimes the wrist is bent, as are also the ankles and the toes. The paroxysms more frequently occur on awaking from sleep, or while in the act of feeding, or after a full meal. When the disorder is once established, any excitement of pleasure or pain may cause a recurrence of the paroxysm, in one of which the child may throw its head suddenly back and die.

This disorder will occasionally exist in a minor degree for some time without the parent or nurse becoming alarmed, until a convulsion ensues. The period of its occurrence is between the first and third year, during the time of teething. The predisposing causes are—irritation of the gums, stomach, or bowels, and eruptions of the head and face. The disease is distinguished by the sudden accession and going off of the paroxysms, the child being apparently quite well in the intervals between them, and free from fever or cough ; and by the presence of swollen gums, glandular enlargement in the neck, or irritation of the bowels. It rarely occurs where a child is nourished on the breast-milk alone, till the first four teeth are cut, and properly fed afterwards; and never after dentition is completed.

This is an extremely dangerous, as well as frightful malady. The breathing is sometimes so long suspended, that death takes place in the paroxysm; and each paroxysm is accompanied by a tendency to stagnation and congestion of blood in the brain, lungs, and heart; a tendency which, by its frequent repetition, may lay the foundation for serious and fatal disease in one or other of those organs.

The Treatment depends on the removal of the exciting cause. During the paroxysm the child may be immersed in a warm bath at the temperature of 98°, or a succession of sponges squeezed out of hot water applied to the throat; the face, head, and chest may be dashed with cold water, and fresh air freely admitted. In the interval, the gums, if swollen, should be well lanced; the bowels at first should be freely purged, and afterwards be kept duly regulated, for which the following powder will be appropriate:—

> Take of Powder of Mercury with Chalk, one grain and a half; Ipecacuanha, half a grain; Compound Cinnamon Powder, one grain; Rhubarb, from three to five grains. Mix; give one every second night in jelly.

Should the child be uneasy and fretful, some sedative may be given, as—

> Take of Liquor of Acetated Ammonia, two drachms; Sal Volatile, ten minims; Tincture of Henbane or Hemlock, half a drachm; Spirits of Nitrous Æther, half a drachm; Syrup, one drachm; Distilled Water, enough to make an ounce. Mix; a tea-spoonful to be given every three hours.

The diet should be spare or nutritious, as the patient may be of full or of feeble habit, but always of that kind which is appropriate to the age (see Feeding of Children). When the weather is mild, the child should go out; and in protracted cases a change of residence for a short time is to be recommended.

CROUP; DIPHTHERITE.

This is a variety of croup which consists of a white membranous exudation covering the upper part of the throat, fauces, tonsils, and back of the mouth, and extending to the parts adjacent; the neighbouring glands are swollen, and there is always an acrid discharge from the nostrils. The disease is said to prevail epidemically in some parts of France, and is thought to be contagious. It is not often met with in this country, except after some eruptive disorder, more particularly measles. It is attended with extreme depression, and is highly dangerous.

Treatment.—An emetic of ipecacuanha should be given, and may be repeated once or twice at moderate intervals if required,—ipecacuanha is not followed by so great a degree of exhaustion as the solution of tartar emetic; the bowels should be opened by a dose of calomel, followed by castor oil; the throat should be brushed over twice in the twenty-four hours with a solution of nitrate of silver, in the proportion of two scruples to the ounce of water, by means of a large camel's-hair pencil; intermediately the patient may gargle with tepid water slightly acidulated with raspberry vinegar, and should be supported with nourishing broths, weak wine whey, &c. &c.; and some tonic, as the bark in decoction, should be given.

DEAFNESS.

Total deprivation or diminution of the power of hearing.

Deafness may be congenital from malformation of the ear. The causes of deafness are very numerous, and may have a permanent or temporary effect. Of the former are violent blows or falls on the head, or diseases of the internal ear, in which the bones and membranes are injured or destroyed, many of which diseases are the result of acute disorders, particularly of scarlet fever, measles, syphilis, and other ailments which it would be useless to enumerate in this work. Temporary deafness may arise from slighter external causes, local or general,—as some forms of fever; common cold, which seems to cause a thickening of the lining of the passage of the external ear; sore throat, producing an obstruction of the eustachian tube, a canal which extends from the throat to the internal ear to allow the transmission of air; inflammation and ulceration of the membrane of the passage to the ear; hardened wax or other substances within it, interrupting the vibration of the air; too great dryness or too much moisture of the parts; and debility or paralysis of the auditory nerve. In most cases the cause of the deafness is not discoverable, and the treatment has to be purely conjectural.

When it is from an accumulation of wax, as it is termed, in the external passage, it should not be interfered with by ear-picks in order to remove it; a small portion of salad-oil should be dropped in the ear every night to soften it, and the ear syringed with warm water, by means of a two-ounce syringe, daily till the wax is detached and washed out, and a little wool or cotton moistened with the following liniment lightly introduced afterwards, and continued for some weeks to prevent a reaccumulation:—

Take of Camphorated Oil, half an ounce; Soap Liniment, half a drachm. Mix.

When cold is the assignable cause, the treatment of cold and catarrh should be adopted. The deafness will often remain some time after the cold has subsided; in which case a succession of small blisters behind the ear, or friction there with some stimulating liniment, as that of croton oil (No. 136*a*), will be useful.

When deafness arises from sore throat, mildly stimulating gargles will be the most appropriate application, or inhaling the vapour of hot water with vinegar; and in this case, also, small blisters or friction behind the ears with some stimulating liniment will be useful. Should there be anything like rheumatism, friction with the following ointment may be recommended:—

Take of Acetous Extract of Colchicum, one scruple; Prepared Lard, one ounce. Mix. A small piece the size of a pea may be well rubbed behind each ear every night.

When the cause is inflammation, or small ulcers in the passage, a warm poultice applied over the ear, or the heart of a roasted onion in the passage, will be found soothing during the inflammatory stage; and equal parts of goulard water and rose water injected into the passage will be useful; afterwards, six grains of sulphate of zinc or copper dissolved in six ounces of elder-flower water or rose water, will be more appropriate; if there be much pain, twenty minims of laudanum may be added to each ounce of the lotion. Where the external passage is dry, and there appears a deficiency of the ceruminous secretion, the passage may be smeared with some glycerine, applied, by means of a hair pencil, twice or thrice a-week; or, what is a very useful domestic remedy, a small piece of the fat of bacon may be introduced in the passage every night, and allowed to remain till morning: this application has a twofold advantage, the fat lubricating the passage, and the salt affording a useful stimulus to the dry surface. The outer part of the ear and all the neighbouring parts should be rubbed well with a brush, a coarse towel, or the hand.

Where there is an excess of moisture or a discharge from the ear, the passage may be carefully syringed with the solution of sulphate of zinc or copper, as before mentioned, and some counter-irritation should be established by means of repeated small blisters behind the ear, or stimulating liniment, otherwise the arrest of the discharge may have a prejudicial effect.

Where the deafness is not traceable to any of the above-mentioned causes, but appears to depend on want of nervous power, if the patient be of a full habit, or there be a sensation of fulness about the head, accompanied by continued noises, the application of two or three leeches behind each ear once or twice a-week, and afterwards, at intervals, recourse being had to galvanism or electricity, will be useful, at the same time attending to the general rules mentioned below.

The sense of hearing is very much influenced by the state of the general health, and more particularly that of the digestive organs: these circumstances should be most scrupulously attended to by persons suffering from a diminution of hearing. The head, or parts in the neighbourhood of the ear, should be sponged every morning with a mixture of vinegar, salt, and water, in the proportion of half a pint of vinegar, two table-spoonfuls of salt, and one pint of water, then rubbed well with the hands, and afterwards with a dry, coarse towel. The head or throat should not be muffled up, or the external ear stuffed with wool (though in very severe weather a little wool may be lightly introduced just at the opening), as the general admission of fresh air tends very much to preserve the parts in a healthy state. The feet should be warmly clad in cold weather; and regular living (rather abstemious than otherwise), and early hours, are of considerable importance. Any adventitious disorder, as catarrh or sore throat, should be got rid of with as little delay as possible. Where the bowels are sluggish, and where there is a rheumatic or gouty tendency, the pill No 15*a*, 16, or 17, taken for a short time at intervals, will be advisable.

There are various artificial contrivances for alleviating deafness, by collecting and conveying to the ear as large a volume of sound as possible, as ear-cornets and trumpets. Gutta-percha tubes are most efficacious for this purpose: many different sorts will be found at the gutta-percha manufactories. Mr. Heeps, of Liverpool Road, has a very ingenious instrument, which will enable the deaf, even at a considerable distance, to hear a sermon : this is a large funnel of gutta-percha placed under the cushion of the pulpit, terminating in a wide tube which is prolonged underground to the pew, and is there divided into as many tubes as there are deaf persons, each of whom, by applying the extremity of one of the smaller tubes to the ear, will hear distinctly. It is preferable that the ear-piece of the tube should not enter the ear, as its continued application is found to irritate the inner surface, and it answers equally well if funnel-shaped, and placed over the orifice of the ear.

Dr. Allen Thomson says, that sounds are louder when transmitted by the contact of the sounding body directly to the head, and he considers that much more might be done than has yet been attempted in a certain proportion of such cases where the external passage is defective and obstructs the sound; by assisting the hearing through the hard parts of the head, or by other means. Indeed, it seems surprising, considering how long it has been known that in some deaf persons the hearing of sounds is improved by promoting their transmission through the bones of the head, that an apparatus calculated to facilitate this mode of communicating the sonorous vibrations has not been employed instead of the ear-trumpet, which can be of comparatively little service to them, as in those hearing best through the hard parts of the head it has long been known that the air-passages, or accessory parts of the organ, principally are affected. In those partially deaf persons, on the other hand, who hear best by the ear-passage, it appears very probable that in general an affection of the internal ear, or loss of sensibility of the auditory nerve, is the cause of deafness. In these last the ear-trumpet is of essential service, by concentrating all the weaker vibrations in the passage which is to carry them to the nerve whose sensations are deadened. In the former case the passage should be closed, and every means used, as by sounding-boards, &c., to collect, and solid elastic rods to conduct, the vibrations to the hard parts of the head.

DEFORMITY.

A deviation from the natural symmetry or form of the limbs or some part of the body; or a distortion or twisting of parts from their natural direction from whatever cause. Deformity may be congenital or accidental: that is to say, existing at the time of birth, or occurring afterwards.

Deformity of the Feet.—Children are often born with the feet turned inwards or outwards: these cases are sometimes so simple, that with due attention on the part of the nurse, by gentle but regular friction, and retaining the parts by the hand in a proper position for some time daily, the twisting disappears by the time the child is enabled to walk: in other instances, keeping the feet in a proper position by the early application of adhesive plaster and linen bandages will generally correct the deformity; in more obstinate cases, which not unfrequently take place after birth, modern surgery has effected a great improvement in the treatment, by the division of the tendons which occasion it, and the operation may be performed with almost invariable success at a very early age; " from the facility with which it is accomplished, incurring little comparative risk, and scarcely any inconvenience."

Crooked legs are for the most part dependent on the state of the general health. (See Rickets.)

Distortion of the Spine, or Spinal Curvature.—The spinal column is not formed in a perpendicular line, but has various curves; the first, or uppermost, is immediately below the neck, and is in a direction outwards, which increases the capacity of the chest; below this it curves inwards at the loins or small of the back, and thus assists in maintaining the equilibrium of the body, and in giving support to the contents of the abdomen. The canal, which runs through the entire spinal column, is continuous with the cavity of the skull, by an opening at its base, and encloses the membranes and substance of the spinal cord (spinal marrow or spinal brain) which is continuous with the brain and its membranes. The equilibrium of the spine, and therefore of the body generally, and the motions of the trunk, are effected by means of numerous muscles attached in a longitudinal direction—chiefly to the lateral and posterior portions of the vertebræ or bones of the spine.

Distortion of the spine is of three kinds:—1. The angular curvature, posterior curvature, or excurvation, the convexity being directed backwards or outwards. 2. The curvature inwards and forwards, or incurvation, the convexity being inwards. 3. The lateral curvature, the convexity being to one side, mostly the right.

The angular curvature mostly affects the vertebræ of the neck and back; sometimes, however, it extends to those of the loins. This variety of curvature is said to be caused in infancy from the practice of raising children by the open hands placed under the armpits, whereby the ribs are pressed inwards, and the spine and breast-bone are pushed outwards. Slighter forms of it occur in persons who are near-sighted, from the habit of stooping and holding the head near objects when reading, writing, or working. In all these the spine is bent forwards so as to form an angle behind, caused in aggravated cases by disease of one or more vertebræ, which yield to the weight of the body, permitting it to fall forward. The disease, not being at first accompanied with much pain, is not unfrequently overlooked in the earlier stages. It usually occurs in young children of a scrofulous habit. Ulceration of the body of the bone takes place, and matter is formed, which mostly gravitates downwards, showing itself as an abscess in the loins or groins, or the upper and inner part of the thigh,—as in psoas abscess, when the disease is situated in the vertebræ of the loins; sometimes the first symptom of this disease is the child crying out or shrinking from pain upon any sudden movement of the spine or limbs; at other times the child gradually becomes enfeebled, and avoids its playful pursuits. If unattended to, great deformity ensues, and the constitution is at length worn out. The principle of treatment must be to amend the general health, as in scrofula and rickets; to relieve the spine from pressure by the observance of perfect rest in the horizontal posture or on an inclined plane; and for the local disease, the establishment of issues or setons in the neighbourhood of the diseased bone, on which account it should be placed at once under the care of a surgeon.

The curvature inwards, or anterior curvature of the spine, is by no means frequent; it is mostly met with in the loins, and is a slight increase of the natural curvature of this part of the spine; it gives the abdomen an unnatural prominence, resembling pregnancy, or some internal disease. When situated at the bottom of the spine, so as to form an angle with the upper part of the pelvis, it presents a serious obstacle to the birth of the child during labour. When it affects the back, it occasions marked deformity of the chest; the angles of the ribs pass outwards and backwards, and the capacity of the chest is diminished, unless the breast-bone be pushed forwards, which is rarely the case. This form of curvature is commonly associated with scrofula or rickets, or some deranged state of the general health, and is to be treated as such on the principles hereafter laid down.

Lateral curvature, or projection of the spine to one side, is by far the most common form of spinal curvature; and it generally appears between the ages of ten and eighteen, although it may commence either earlier or later. It is not the result of constitutional disease, but for the most part is the effect of mechanical constraint and repeated malposition of the body. Lord Bacon says, "If man is so much more prone to deformity and disease than other animals, it is because the dictates of instinct, safe whenever animal man is concerned, are interfered with by his artificial and mistaken notions." During the earlier part of life all the bones possess a degree of flexibility; hence they are liable to be influenced by pressure, and the spinal column being formed by a series of bones and joints, will be still more disposed to deviate from its natural position from the same cause.

The pernicious effects of tight bandaging and artificial support were strongly insisted upon in the chapter on the Clothing of Children.

The spinal column scarcely attains its full growth and firmness till the age of twenty-five. Women are more frequently the subjects of spinal curvature than men, as their structure is more delicate, with a greater degree of flexibility of spine. Girls, however, until the age of nine or ten years, are quite as well proportioned as boys, but from that age they are too commonly restrained in all their more active pursuits, and, under the mistaken idea of improving their shapes, confined in all their bodily movements by stays; as if the Creator had formed the body of the female too weak for its own weight, and it was therefore necessary to case it up in artificial supports. Among the very poorest the abuse exists to a great degree; and girls of ten or twelve are kept from bending their bodies naturally by a stiff piece of wood (a busk) stuck down in front of their chest and abdomen. Later in life, these articles of dress become indispensable, the muscles of the frame having lost their power from not being accustomed to exert their appropriate actions. The human frame is so constructed, that the muscles, and particularly those connected with the spine, preserve its equilibrium: when their use is superseded by artificial means they lose their power, and as these substitutes cannot act with the perfection of the natural supporters, the defect sooner or later shows itself; the unsupported spine gives way, and curvature to a greater or less degree ensues.

Between the ages of eight and sixteen, girls make a rapid advance in the development of their bodily and mental powers, and towards the latter age the feminine attributes are attained. During these years they are mostly consigned to school, where, unless under very considerate management, their bodily vigour is sacrificed to mental and artificial endowments, by long standing at lessons, and sitting on seats without backs in an upright posture, and too often hurried meals, by which their constitutional powers generally are enfeebled. Spinal weakness is not the only evil consequence, but is very commonly associated with disorders of the digestive and respiratory organs, caused from compression of the chest and abdomen by their dress. While standing, the attitude is frequently that of resting on one leg, to which the whole weight of the body is transferred through the medium of the hip-joint, the pelvis being inclined, and thus producing unequal pressure on the bones of the spine and the intervertebral cartilages: this position, therefore, if continued for a length of time, or frequently repeated, will ultimately cause distortion. Sitting upright for several hours in the day becomes extremely fatiguing, unless there be some support behind: in order to obtain relief, the body is naturally inclined forward: for this the girls are corrected, under the mistaken idea that it tends to make them stoop, whereas this really strengthens the extensor muscles of the back. It would be better, if they are expected to sit any length of time, that their backs should be supported, as in the Astley Cooper chair.

The distortion is more common in the upper and middl classes, and comparatively rare in the lower and hard-working. Among the hardy rustic women, who are employed in out-door occupations, and who, from the nature of their employment, are loosely clad, it is very unusual to meet with this variety of distortion.

It is sometimes seen in nurse-maids, who from an early age carry a child about always on one arm; or occasionally in women occupied in special employments requiring a distorted position of body, or a too exclusive use of the right arm. There may be a predisposition to curvature from a ricketty or scrofulous constitution, from original feebleness, or from weakness produced by premature and rapid growth, or by protracted maladies of any kind, from residing in unhealthy situations, being insufficiently fed, or any cause inducing general debility.

The upper curvature has generally its convexity to the left side; but this is usually small or altogether wanting, or is merged in the most remarkable one, which is that of the back, and has its convexity to the right; the lowest is at the loins, and has its convexity to the left. In the progress of lateral curvature of the back, as a matter of necessity, in order to keep the body erect, this curvature in the loins takes place in a direction opposite the first. The chief curvature in the back, being generally convex to the right, pushes out the right shoulder-blade, and causes the left shoulder-blade to fall inwards.

The first symptom which attracts attention is the projection of one shoulder beyond the other, owing to the ribs of the same side forming a projection corresponding to the deviation of the spinal column. When the distortion is great, the collar-bones and pelvis will be altered in their position, and the muscles of the spine least used will become wasted.

If the disease be of any duration, the spine will be found in the form of an italic *ſ*, with a slight bend outward; the whole of the right side will be rounded or of a barrel-like form, while the left is diminished or contracted, the ribs being closer together than is natural.

When the chief curvature is in the loins, it is generally convex towards the left, and more or less backward, the bodies of the vertebræ being considerably changed, and sometimes becoming disorganised.

The consequences of extensive lateral curvature are often very serious, such as severe pains, cramps and numbness, and impaired action of the muscles supplied by the nerves issuing from the concave side of the spine. Emaciation frequently follows, and from the altered situation of the ribs the cavities of the chest and belly are rendered irregular and are much encroached on, and the viscera, as the lungs, heart, and digestive organs, impeded in their functions; hence difficulty of breathing, palpitation of the heart, irregularity of pulse, and costive bowels.

Sometimes, when the curvature increases gradually, the viscera accommodate themselves to their unnatural position, and comparatively little inconvenience may be felt, except upon increased exertion. The progress of spinal curvature is extremely variable: it has been said sometimes to occur suddenly, — but this is extremely doubtful; it probably had existed slightly, and been proceeding slowly, but had been concealed by the dress till the occurrence of some severe illness, or the confinement of child-bed, or nursing, augmented or made evident the deformity.

Curvatures may proceed to a certain extent, and become stationary; or they may be in a great measure remedied upon the removal of the causes, and by proper means. When neglected, they may increase so that the patient is bent in a most extraordinary manner. The result of curvatures depends chiefly upon their extent, and upon their effect on the spinal marrow and nerves, and the viscera of the chest and abdomen. As long as there are neither spasms, nor palsy, nor marked disturbance in the functions of vital or internal organs, nor other serious derangement, reasonable hopes may be entertained of the patient living to an advanced age. Such disorders occurring as an evident consequence of curvature are to be considered unfavourable, the danger to life being proportioned rather to the nature and extent of the accompanying maladies than to the amount of the curvature.

Treatment.—That promulgated in recent times is most unsatisfactory—" So many writers, and so much said, and yet so little information furnished, each successive author deprecating the means advised by his predecessor, and yet adding nothing to what was already known." (Copland.) The first step is to ascertain the immediate causes, whether constitutional, mental, or moral, and to direct our efforts most strenuously, decidedly, but cautiously, to their removal and avoidance; for if one of the causes of mischief continues in operation, the best-devised treatment may be of no avail. Of all the causes of curvature, the most frequent, and the existence of which it is very difficult to ascertain, though rarely relinquished when so long persisted in as to produce this effect, is self-pollution. Its effects in exhausting the bodily powers, in emaciating the muscles, and in relaxing the ligaments, are much more remarkable than those from any other cause. Attention should, therefore, always be especially paid to its detection and entire relinquishment.

If the practice of carrying heavy weights or using undue exertion, or injudicious school management, have occasioned the deformity, they must be put a stop to. The too prolonged hours of study inflicted upon girls are unquestionably a great evil; but they would be less so were the hours of relaxation more rationally arranged. No exercise can be beneficial unless the mind be actively interested, or at least pleasantly occupied, during the time of exertion: but little good can result from formal walks taken without interest or enjoyment. Our efforts must be directed to restore or invigorate the general health by attention to the functions of digestion and excretion, by a suitable nutritive diet, by pure air, free ventilation, and appropriate exercise, before and during the employment of other means directed more especially to the removal of the curvature; and at the same time we must have recourse to such tonics and restoratives as will promote nutrition. If there be no inflammatory action present, the light bitter tonics with the mineral acids will be useful; if pallidness, with want of power, the preparations of iron will be most appropriate, as the compound steel mixture, the muriated tincture of iron, &c.; should the monthly periodical discharge be irregular or deficient, the compound steel mixture, with decoction of aloes, or the compound steel pill, with the pill of aloes and myrrh, may be recommended. (See Menstruation.) The sleeping-rooms should be large, light, and well ventilated; exercise in the open air should be regularly and daily taken short of occasioning fatigue; riding on horseback or in a carriage is not to be commended,—walking is by far the best general exercise, conjoined with such as employ the muscles of the back, shoulders, arms, and lower extremities. Various modes of exercising these muscles may be employed; but whatever exercise be engaged in, the muscles of both sides should be equally used,—as with the skipping-rope, battledoor and shuttle-cock alternately with each arm, light dumb-bells, la grace, Indian sceptre exercises, hand swinging by a cross bar fixed to the ceiling or doorway by two hooks and ropes, one hand being engaged at each end by a firm hold, and the feet sufficiently distant from the ground not to touch it, yet not so far as to cause a shock in the event of losing the hold. This exercise is strongly to be recommended at short intervals during each day. When the curvature is very great, a pulley should be fixed at a considerable height above the patient's head, and a rope passed through it with a weight attached, heavy in proportion to the age and strength, and which should be increased gradually, the patient pulling it up and down,—by which means both the arms and back will be employed. The back, and indeed the whole chest, should be sponged every morning with vinegar and water, in the proportion of one to two, or with salt and water (two pounds of salt to a gallon of water), tepid at first, the temperature being gradually reduced to cold, and, if the patient can bear it, a shower-bath may be taken the alternate mornings. After either, the surface should be carefully dried with coarse towels, and friction freely employed. The back should be well rubbed every night, and shampooed: the rubbing and shampooing should be more particularly directed to the muscles on each side of the spinal column, and should be continued for an hour; the surface should be well dusted over at intervals with hair-powder, to prevent abrasion of the skin; the rubber's hands should be smooth and free from rings. The best position for the patient is to sit with the head bowed and resting on a cushion, and the chest supported against a table, the rubber being placed on a lower seat behind her. Dr. Copland recommends friction over the back generally, with the following warm liniment:—

Take of Balsam of Peru and Balsam of Tolu, each one drachm; Spirits of Turpentine, one ounce; Soap Liniment and Olive Oil, of each one ounce and a half, or sufficient to form a liniment.

This may be used at any time with the patient in a recumbent position, or alternated with the other mode of rubbing.

The exercises should be carefully managed, used for short periods only, especially at first, and never so long as to cause fatigue. A proportionate quantity of rest is of primary importance, and should be taken at intervals between the exercises, otherwise exhaustion and languor, and increased distortion, may be the consequence. The patient may lie on her back, or on either side, on a couch or a firm mattress, which may be horizontal or on an inclined plane, and furnished with a low pillow for the head, and small horse-hair or air cushions; and for reading or writing, a frame passing over the body may be attached to the sides of the couch or inclined plane, in grooves which will admit of its being moved up and down, and the reading-board be so inclined as to suit the convenience of the patient, who should acquire the habit of using the arm and hand of that side on which the *concavity* of the spine exists. When reclining in bed or on a couch on the side which presents the convexity, a small horse-hair pillow or cushion should be placed under that side just beneath the arm-pit, so as to thrust the convexity towards the true axis of the spine. Sleeping with too high a pillow, or always on the same side, often of itself produces a slight curvature: the position should be varied, and a lower pillow substituted, and if there be curvature, a hair-cushion placed as above directed. Recourse should be had to instruments only where they are imperatively required, and they should be so adapted as to admit of the movements of the spinal muscles, and to press upon the convexity of the curve. They should be used only in more extreme cases, where it is necessary for the spine to be supported or aided in carrying the weight of the head and shoulders. The chief objection to all instruments is the material of which they are constructed; for a broad hoop of iron or steel encircling the pelvis as a basis of support and pressure, and the other metal parts forming the supports, springs, screws, &c., however well they may be padded, not only hamper or restrain the movements as long as they are applied, but also, and most injuriously, act as conductors of the electricity circulating through and on the surface of the body, and convey it into the atmosphere, especially when it is warm or humid.

In the excellent couch constructed by Mr. Lonsdale, a broad belt passes between supports attached to the sides of the couch, and the patient when reclining places the belt under the convexity, and has it drawn upwards; the weight of the body being in great part borne by the belt, which thus presses the convexity upwards. Another couch has been employed by Mr. Coles to enable the patient to exercise the arms when in the prone position; it is well adapted to posterior curvature or excurvation of the spine, but it should be used with great caution when this curvature is owing to disease of the bodies of the vertebræ.

Delirium Tremens.

A state of delirium and agitation almost peculiar to those addicted to spirituous liquors or strong narcotics. It is a very singular complaint, and may be mistaken for inflammation of the brain, unless great care is taken to acquire a knowledge of its history.

Symptoms.—It is generally preceded by indisposition, lassitude, watchfulness, want of appetite, and sleeplessness. There is extreme intolerance of interference in the performance of ordinary duties, which are done in a blundering agitated manner. This condition is followed by a degree of nervous irritation and trembling of the hands and limbs, more particularly on making any effort. The patient is mostly bathed in sweat, talks incessantly, wildly, and incoherently, recognising those about him, and answering questions rationally, but hurriedly, the mind soon wandering to other objects: he is anxious to busy himself, and extremely suspicious of those about him, and fancies that he is surrounded by enemies, and will now and then make efforts to escape. Always restless and rambling, if there is any approach to sleep it is haunted by dreams which seem to excite great terror; the pulse is frequent, the tongue tremulous and somewhat moist and furred, the eyes mostly bloodshot, and the face in general red, but sometimes pale.

Causes.—Habitual intemperance, indulgence in opium or tobacco, or the sudden withdrawal of them, mental exhaustion, from intense study or anxiety, or other causes, loss of blood, and diseases or wounds inducing extreme debility.

In fatal cases, the delirium is succeeded by stupor, and convulsions of the most painful nature close the scene; or sometimes a state of temporary insanity ensues. In most cases the patients recover in the first instance, if the disease is clearly distinguished; but if it is mistaken for inflammation, and treated as such by copious depletion, the chances are much against their well-doing.

It is an exhausted state of the brain and nervous system, characterised by great irritation. Habitual drunkards cannot take much food or much rest, and therefore the powers of body and mind are enfeebled. The chief object is to tranquillise the irritation and to induce sleep, for which purpose opium, morphia, and their preparations, are the most powerful means. The opium must be given in large doses, two or three grains of solid opium, or from half a drachm to a drachm of the tincture at once, followed up by one grain of the former, or twenty minims of the latter, every two or three hours till sleep is procured; or one grain of the muriate or acetate of morphia, or the stimulant anodyne draught (No. 102) may be given at once, and a fourth of a grain at the intervals above stated afterwards. Should the bowels be costive, it will be well to administer an enema at once, and two of the pills (No. 35) every four hours after the first opiate pill or draught has been given: by these means sleep will be obtained, and the bowels most likely act, bringing away a copious discharge of dark, black-looking, bilious matter, to the patient's great relief; for in this disease the liver is usually much affected and gorged with bile. After this, the bowels should be kept moderately open, but much purging is highly objectionable. Should there be nausea and vomiting, the opiate had better be administered in the form of enema, in rather larger quantities than when given by the mouth, and repeated at the same intervals. If the vomiting is very urgent, a mustard poultice may be applied for a quarter of an hour to the pit of the stomach, or three leeches, and on their removal a hot bread and water poultice over the bites, and the creosote mixture (No. 117) may be given.

It is on some occasions advisable for the patient to take the opiate in a moderate portion of his accustomed stimulant, as gin or brandy, with or without water, where the opiate will not otherwise remain on the stomach. In some cases, where the patient is not an habitual drunkard, but the delirium tremens is the effect of temporary excess, there will be inflammatory symptoms, such as flushed face, wild-looking and red eyes, with head-ache; and here, after due consideration, moderate and cautious abstraction of blood should be premised, and a combination of opium with tartar emetic in the following form will be useful:—

Take four grains of opium, one grain of tartar emetic; mix well, and divide into four pills; take two directly, and repeat one every three hours till sleep is procured. Cold applications also to the head may be tried, and blisters applied to the legs if required.

Now and then these patients are very boisterous and violent, but it is better to avoid coercive means and resort to gentle and persuasive ones, taking care at the same time to have persons sufficiently powerful to control them where they are disposed to injure themselves or others; and it is extraordinary how much more easily patients under these circumstances are managed by those who are accustomed to maniacs, than any other attendants, however well adapted they may be in other respects.

When the excitement and nervous irritation are somewhat subdued, a watchful eye should still be kept on the patient; regularity as to sleep and bowels should be carefully observed, and for this purpose one or two of the pills (No. 32) may be taken every night, and in the morning a seidlitz powder or dose of castor oil, if required; a light and nutritious diet, and a regulated quantity of stimulant, should be allowed, and the bitter infusions with some stimulant are highly useful to restore tone to the stomach, as Nos. 118, 119, or the nitrate of bismuth with tincture of hop (No. 120).

The following case is instructive:—Dr. Rogan, of Londonderry, says, "I immediately gave him a drachm of laudanum in half a glass of brandy, and directed it to be repeated every hour till he slept; he was also to be well supplied with strong beef-tea. He took three doses of the medicine without its causing any tendency to sleep, or abatement of the delirium. His pupils were now so much contracted, that I hesitated to give more opium, and determined to try *chloroform*. I administered it on a handkerchief without any opposition from the patient, who seemed amused by the process. In a short time he was under its influence, lying quiet and breathing naturally. I kept up its effect for about three-quarters of an hour, and then withdrew it. He roused up shortly after, quiet in manner and evidently better. In about ten minutes he fell asleep, and slept about seven hours without intermission. When he awoke he was quite sensible and much refreshed. He took some food, and again slept for some hours longer, and awoke quite well, and was able to return to his work." (Braithwaite's Retrospect of Medicine, vol. xxvi. p. 37, 1852; also Ranking's Abstract, vol. xvi. p. 50.)

Although the attack may be recovered from, it is likely to recur, and in a more aggravated form, unless the pernicious habit of intemperance is broken through. This requires extreme caution, and few have the resolution or capability of abandoning it at once without risk. Where the stomach can take and digest a sufficient quantity of nourishment to uphold the system, much may be effected. Let wine or malt liquor be substituted for spirituous liquors in continually reduced quantities. At the same time, in all who are endeavouring to break through the evil habit of intemperance, some innocent and rational excitement of mind and body must be substituted for the pernicious one that has been abandoned. Another, and perhaps more feasible plan, may be to take the accustomed stimulus in diminished quantities daily, substituting an equal measure of water for the proportion of spirits withdrawn; or to do like the Highlander, who cured himself of the habit of drinking by dropping some melted sealing-wax into his glass daily till the glass became full of wax.

DIABETES.

A superabundant discharge of urine containing sugar, accompanied by excessive thirst and progressive emaciation. Varieties are mentioned as of great quantities of limpid or chylous urine (see Incontinence of Urine). A mere increased discharge of urine does not constitute diabetes, as great quantities of pale urinous fluid are passed by nervous and hysterical people, and the amount is augmented in cold weather from diminished perspiration, and also from other causes. But the urine of diabetes always contains sugar. The quantity of urine passed in this disease will sometimes amount to thirty, forty, or more pints in the twenty-four hours, and often considerably exceeds in weight both the solid and liquid food taken: hence the excess must be formed at the expense of the system. "The quantity of solid matter (principally sugar) contained in a pint of diabetic urine at an average may be ten drachms; it has amounted to upwards of two ounces" (Cyclopædia of Practical Medicine, art. *Diabetes*).

Diabetic urine is in appearance limpid and of a pale straw or greenish tint, and has a peculiar odour, as of new hay or the faint smell of apples, or of a room where apples are kept. It is heavier than healthy urine, and generally contains all its ordinary constituents, with the addition of sugar. The sugar may be obtained by careful evaporation and other means, and has a greater resemblance to grape sugar than to that obtained from the sugar-cane. (Watson's Lectures, p. 599.) It will often crystallise on the dress of patients, and will be observable when dry on a black dress or black stockings.

Symptoms.—In addition to the passing a large quantity of sweet water, the thirst is excessive, and mostly the appetite also, the bowels constipated, the dejections firm and dry, and the tongue clammy, generally with red edges, and sometimes brown down the middle; the gums are red and tender, as is also the inside of the mouth, the breath has the same smell as the urine, the skin is harsh, dry, and often scaly, and the disease is not unfrequently preceded by disease of the skin, and by carbuncles. The patient is feeble and irritable, has a dull heavy pain of the loins, and aching of the legs, and is sometimes consumptive, and affected with disease of the lungs.

Diabetes is mostly a chronic disease, continuing for months and years, and the patient, unless relieved, is at length wasted and worn out, and frequently dies of general dropsy, disorder of the stomach, or some organic disease.

The causes of diabetes are very obscure; among others are mentioned very intemperate habits, hereditary disposition, excessive fatigue and exertion, with great privation, drinking largely of cold water while in a heated state. The disease appears to arise from the faulty state of the digestive organs or assimilating functions, as that which ought to form the nourishment of the frame is carried away in the form of sugar.

Treatment.—Diabetes is one of those diseases which may be relieved by treatment, but it rarely admits of cure.

The objects to be had in view are, to improve the digestion, and to avoid all those articles which stimulate the urinary organs, relax the habit, or tend to the formation of sugar. For the first, the treatment recommended under the head Dyspepsia, and the administration of tonics, carminatives, and antacids, should be tried: for the second, the attention must be directed to the regimen and diet, which above all is of importance. The patient should live as much as possible on solid animal food and fish, as affording more nourishment and less saccharine matter than vegetables; potatoes, carrots, and turnips, should particularly be avoided, but a small quantity of spinach, greens, or French beans, may be allowed, though they are not recommended, and a moderate portion of well-baked and toasted bread; tea, sugar, and fermented liquors, must be avoided. For drink, animal broths, and pure spring water or distilled water acidulated with nitric acid, are the best; sorrel or lemon may be chewed to allay thirst. The food should be taken in moderation, so that the stomach may be enabled to digest it, and the quantity of fluid drunk diminished by degrees. The Bristol hot-well water, which contains carbonate of lime in solution, is recommended by Baillie, Prout, and Buchan. Daily exercise, short of causing fatigue, should be taken in the open air; horse-exercise is to be preferred where it is practicable. The skin should be well rubbed, and its permeability increased by the hot-air bath; and warm clothing should be worn. Where there is much pain in the loins, cupping or leeching may be had recourse to; but great consideration is necessary as to the propriety of drawing blood. Where there is pain at the pit of the stomach, with nausea, the application of three or four leeches occasionally, or small repeated blisters, may have a beneficial effect (see Dyspepsia). Opium is of great advantage in quieting nervous irritability; five grains of Dover's powder may be given in the form of pill three times a day, and washed down with some light bitter infusion, as calumba or bark; or from half a grain to one, two, or three grains of opium, with five grains of rhubarb, three times a day in a pill; or the opium alone, with the alkaline solution with rhubarb (No. 15); mercurial and saline purgatives must be avoided. Where an aperient is required, castor oil, or the compound colocynth pill, or enemas, are most advisable. Dr. Watson makes favourable mention of the creasote: from one to three minims may be taken three times a day (No 117, Creasote Mixture).

The decrease of the specific gravity of the urine, and of the quantity of sugar contained in it, and the moderate deposition of red sand, are favourable symptoms; but great caution is required to avoid cold and wet, and all extremes of temperature, or the disease, although apparently relieved, is very likely to return.

Mr. Bernard says that this mode of treatment (by diet of animal food) diminishes the excretion of sugar by cutting off all that enters the blood by the alimentary canal, but does not cure the disease, because it fails to affect the hepatic organ. Professor Burnett says that the diet ordered in this case is one which admits of very slight formation of sugar; and that, together with opiates and the occasional use of the warm bath, is the best treatment which has hitherto been adopted (Braithwaite's Retrospect of Medicine, vol. xxvi.)

It would be foreign to the purpose of this work to enter further into the varieties of treatment which have been mentioned.

DIARRHŒA; LOOSENESS, OR PURGING.

Diarrhœa consists in frequent and copious discharges of fæculent matter from the bowels, with griping, and often at first with a slight degree of vomiting, and also accompanied with a furred tongue and foul breath, but unattended by inflammation or fever, the pulse usually remaining of the ordinary frequency. Each discharge is generally preceded by a murmuring noise and flatulence in the intestines, together with a sense of uneasiness in the lower part of the belly, which ceases on the discharge taking place, but is again renewed before the succeeding one. The appearance of the stools is various: sometimes they are thinner than natural, from the admixture of a larger quantity of fluid poured out by the exhalants of the intestines than common. Sometimes they are slimy, and at other times green, when first discharged; sometimes they are evacuated of a yellow colour, but become green on exposure to the air, and now and then they are of a dark brown colour, and very fœtid. As the disease advances, the stomach becomes affected. and nausea and vomiting occasionally prevail; the countenance turns pale, and the skin is dry and rigid. If it continue for any length of time, emaciation ensues, attended with extreme prostration of strength. This morbid increase of the peristaltic motion of the bowels is the effect of a variety of causes acting either on the body generally or on the parts affected. Of the former may be noticed the application of cold to the surface of the body, so far as to give a check to perspiration, and thereby determine the flow of blood more to the internal parts; likewise passions of the mind, as a sudden panic, which operates on the bowels of some persons as speedily as a dose of physic; and certain diseases, as retrocedent gout and rheumatism, fever, and pulmonary consumption. Of the latter may be enumerated, first, matters taken into the stomach, and acting either from their quantity (as in the case of overcharging the organ), or from their nature, on the state of the stomach itself, and producing fermentation, &c. as acid fruits, oily and putrid substances, and purgative medicines; secondly, matters generated in the body and thrown into the intestines, as acrid bile, pancreatic juice, purulent matter, dentition, worms, &c.; thirdly, mucous matter poured from the mucous follicles of the intestines themselves, in consequence of an increased excretion, and producing what is known by the name of mucous diarrhœa.

This disorder frequently supervenes upon a debauch, in consequence of the mixture of various articles of food and of drink, each of which in itself might have been perfectly innocent; or the excess alone may have occasioned the irritation and disturbance.

Diarrhœa is often produced in children by giving them other food than their natural sustenance, the mother's milk, as in artificial feeding: the new kind of food disagrees with them. The same thing is apt to occur in adults from a like cause. An article of diet which is perfectly wholesome and digestible, and which the stomach bears well after being accustomed to it, will sometimes cause griping and purging when it is taken for the first time. It is upon this principle that diarrhœa occurs to persons first visiting a foreign country. Among the causes predisposing to the disease is sudden change of temperature: this is more particularly observable in the hot weather of summer and autumn.

Treatment.—A periodical looseness should not be stopped suddenly,—it may be considered as an effort of nature to carry off some offending matter, which, if retained in the body, might have prejudicial effects. The diarrhœa which occurs to children during dentition is for the most part far from being hurtful to them; such children usually cut their teeth with less trouble than under other circumstances, and it should only be checked if in excess (see Children).

Where the disorder arises from the presence of offending matters in the stomach and bowels, it will cease of itself, the irritating substances being removed by the purging. As a general treatment in recent diarrhœa, it will be well to assist in removing the disturbing cause, by giving a warm rhubarb draught (No. 31), or a full dose of castor oil, and if there be much griping, ten or fifteen minims of laudanum may be added to the castor oil. Should the diarrhœa be in consequence of excess in eating and drinking, and accompanied by nausea, an emetic of half a drachm of powdered ipecacuanha may be first given, or weak camomile tea, or infusion of flour of mustard. The patient should be confined to a spare diet, with bland drinks, as thin broths of veal with rice, barley-water, gruel, &c.: the stomach and bowels being cleared, the compound chalk mixture (No. 60) may be given, or the compound chalk powder with opium in doses of fifteen or twenty grains three or four times a day, or a mixture of the following form:—

Take of Dilute Sulphuric Acid, fifty drops; Laudanum, fifteen drops; Peppermint or Cinnamon Water, three ounces. Mix. A third part to be taken every four hours.

In common cases this will be all that is required; but should the disease not yield to this simple mode of treatment, and the diarrhœa continue, with the stools frequent, loose, and pale, two grains of the grey mercurial powder, and five grains of compound ipecacuanha powder, should be given at bed-time, and half a drachm of the tincture of catechu added to each dose of the compound chalk mixture. The belly, if sore and painful, should be rubbed with the opiate liniment, and a flannel roller applied, the bland diet continued, and a small portion of brandy and water, with sago, rice, or bread pudding, taken at dinner.

Where the stools are abundant, having an appearance of coffee-grounds, small doses of sulphate of zinc or copper may be prescribed, as in the following form:—

Take of Sulphate of Zinc or Copper, one grain; Powdered Opium, three grains. To be well mixed, and made into six pills with Aromatic Confection; of which one may be taken every four hours, with a dose of the simple chalk mixture (No. 60).

Where the nights are disturbed, an opiate enema carefully administered at bed-time will procure rest.

If the disorder arise from exposure to cold, in the first instance, in addition to the other means, the patient should be confined to bed, and the feet and legs immersed in a mustard bath, and hot flannels or a bran poultice applied to the belly.

When the complaint is on the decline, a more liberal diet may be gradually allowed, and the restoration to health assisted by weak bitter infusions (see Tonics), or moderate doses of the muriated tincture of iron in some aromatic water. If the disorder have been of any duration, and the individual be disposed to bowel complaint, it is advisable that flannel should always be worn next the skin, over the abdomen, and a moderately firm belt for some time.

Dislocation; Luxation.

A putting out of joint, or a displacement of a bone from its natural position, where it was connected by a joint or "articulation."

Dislocation is *complete*, when the bones have entirely lost their natural connexion; *incomplete*, when they partially preserve it; and *compound*, when a wound communicates with the dislocated bone.

There is scarcely a bone in the body which may not be dislocated by violence; but some are much more likely to be so than others; and in a work of this kind it will be more useful to give some plain directions for relieving those of more frequent occurrence, when efficient surgical aid is not procurable. There are some dislocations, which, having once happened, are likely to occur again, and the sufferer will therefore be able to give directions to uninformed persons to assist him. It is sometimes difficult to tell whether dislocation actually exists or not, or whether it is complicated with some other injury, as fracture, &c. Under these circumstances it will be better to wait even days for skilful advice, than to make attempts to remedy an injury the nature of which is doubtful.

The Symptoms of dislocation having occurred after violence or accident, are pain, usually accompanied by faintness or sickness, loss of power in the limb, its becoming fixed and immovable in one position, and the joint being deformed.

In all instances, unless there be some good reason to the contrary, an early attempt at reduction should be made, inasmuch as delay increases the difficulty of its performance; indeed, after a certain length of time has elapsed, scarcely any force consistent with safety to the patient will be adequate to return the displaced bone, on account of the resistance of the muscles and the obliteration of the cavity or articulating surface which formed one portion of the joint. It is in most cases the action of the muscles which tends to keep the bone displaced, and resists the efforts made to reduce it to its former position; for a dislocation may often be reduced with comparative facility immediately after the accident, while the sufferer is under the influence of the faintness which invariably ensues, and during which time the muscles are feeble and relaxed; and in cases of dislocation in robust and muscular individuals, it is customary to endeavour to produce faintness (if that following the accident has subsided) by bleeding, nauseating medicines, warm baths, &c. When a bone is dislocated, it is not simply pushed out of its place, but is drawn in another direction, foreign to its natural one. The first object must be, to remove the extremity of the bone out of the situation into which it has been forced, and is retained by the muscles of the limb, and to pull it as near to the position from which it has been displaced as possible, and the muscles will of themselves tend to draw it into its proper situation. The dislocations which most frequently occur on slight exertion are—dislocations of the jaw, of the shoulder (or arm) into the arm-pit, and less commonly of the thigh at the hip-joint.

DISLOCATION OF THE LOWER JAW.—This may happen on one or both sides: it more usually happens on both. The most frequent causes are yawning very wide, and violent laughter; in either case, the jaw being forcibly and quickly drawn down, its joint-ends slip from their sockets, and the jaw becomes firmly fixed, keeping the mouth wide open.

Treatment.—The operator is to wrap some linen round his thumbs, to prevent them being hurt by the patient's teeth, and then to pass them into the mouth and press the bone downwards and backwards by pushing against the grinding teeth: at the same time he is to raise the chin by his fingers; by this means the joint-ends of the jaw-bone are made to descend, and as soon as they reach the edge of the sockets the powerful muscles draw the bone upwards, which slips into its place with a sudden snap, and the dislocation is reduced. Mr. South says, "The patient being seated on the floor with his head resting against the operator's knees, who stands behind him, a couple of fork-handles, or two pieces of wood of the same size, are to be passed into the mouth, one at each corner, and to be pressed back as far as they will go between the teeth on each side, and there held by another person. The operator then, bending over the patient, and passing his own fingers between one another so as to make a loop of both hands, places them under the chin, and pulls it up so as to close the mouth. As this is doing, the joint-ends of the jaw-bone are made to descend," &c. The jaws should be kept closed for a few days by a bandage passed over the head and under the chin, and the patient should be cautious how he laughs or yawns too violently for the future; as, when the jaw has once slipped out, it readily does so again in either of these actions.

DISLOCATION OF THE SHOULDER, OR RATHER OF THE ARM.—The upper bone of the arm may be dislocated in three different directions—downwards into the arm-pit, forwards under the collar-bone, and backwards under the shoulder-blade.

This accident is mostly caused by violence, as falling on the hand while the arm is extended, or on the elbow while the arm is raised from the side: in a child, by catching hold of the hand and suddenly jerking it, as in crossing a street.

Symptoms.—In addition to those before mentioned, common to all dislocations, the appearance of the shoulder will be perceptibly altered. It will have lost its rotundity, instead of which there will be a flatness or depression; all the motions of the arm will be confined, and it cannot be moved without the whole shoulder moving with it; and in endeavouring to trace the bone, the round head will be discovered in some unusual position, mostly in the arm-pit.

"When the arm has been once dislocated, it is very liable to be dislocated again and again by any jerk of the elbow upwards, or even in the simple effort of putting on a coat. The person soon becomes well aware of the injury, and finding that he can neither get his elbow close to his side, nor raise it to a level with his shoulder, is pretty sure that he has 'put his shoulder out,' as he has done before. In general, the more frequently the bone is put out, the more readily is it put in, if only managed in the right way, and shortly after its occurrence."

Mode of Reduction.—The patient and the operator both lie down on a sofa or the floor on their backs, side by side, but so that the feet of the one are at the shoulder of the other, on the side where the displacement is. The operator then, having taken off his shoe, places a folded towel in the patient's arm-pit, and puts his foot upon it between the chest and the arm. He then grasps the patient's wrist with both hands, and pulls the arm down steadily; at the same time he desires the patient to make some little change in his position, and thus induces him to call some other muscles into action; so that while the resistance to the reduction which the muscles of the dislocated shoulder had been previously offering is for a moment suspended, the operator pulls a little more vigorously, and the bone generally returns immediately into the socket with a more or less loud snap. This momentary diversion of the patient's attention greatly assists in the reduction, and if adroitly acted on will often enable a person not very strong to reduce the dislocation in a man of twice or thrice his own power, and who, without it, will often resist effectually the conjoined efforts of three or four stout persons, tugging at his arm with all their might.

A person who has repeatedly dislocated his shoulder, may, if he have courage to bear a little pain for a few minutes, even manage himself to reduce it. If the accident has happened whilst he is out in the fields, and there be a five-barred gate at hand, all he has need to do is to get his arm over the top rail, and having grasped the lowest rail he can reach, hold fast, and let his whole weight hang on the other side of the gate; if he then make some little attempt to change the position of his body, still letting his weight tell on the top of the gate, the bone will probably slip into its place. The principle on which this is done is exactly the same as when the heel is put in the arm-pit, and the arm pulled—namely, to move the head or top of the arm-bone to the edge of the socket, below which, when dislocated, it had dropped; and this done, the muscles will of their own accord pull it into its place.

Where there are a sufficient number of assistants, the following plan is more generally resorted to:—Place the patient in a chair; let the blade-bone of the dislocated shoulder be well fixed by passing a large towel or table-cloth, folded broad, close under the arm-pit, and crossed over the opposite shoulder, and held either by a strong assistant, or fastened to some fixed point; pass a wetted roller round the arm, just above the elbow, to protect the skin, and over this fasten a towel with a hitch noose; raise the arm at right angles with the body, or a little above it, to relax the muscles, and bend the fore-arm. Two persons should now make extension by the bandage fastened to the arm, and two by the other one fastened round the bod (if that has not been fixed), with a steady and equal force. After the extension has been made a few minutes, the operator should place his knee in the arm-pit, resting his foot on the chair, and raise his knee by extending his foot; he should place his hand at the same time on the top of the shoulder, pressing it downwards, when the head of the bone usually slips into its place. While the extension is making, a gentle rotatory motion will diminish the counter-acting power of the muscles,—or the attention of the patient may be called off by sprinkling some water suddenly in his face.

Dislocation of the hip-joint or thigh-bone is not a very common accident: when it does occur, it is extremely formidable, and difficult to manage. The head of the thigh-bone may be dislocated—1st, directly upwards, on the ilium; or, 2ndly, downwards; 3rdly, upwards and forwards; 4thly, upwards and backwards. The dislocation upwards happens more frequently than any other. In this variety, the leg is shortened (forced or drawn up). The great toe rests against the opposite foot, the knee and foot are turned inwards, the knee is a little in advance of the one on the sound side; the leg cannot be separated from the other, and the attempt to move it causes very great pain, and the roundness of the hip will have disappeared. In this accident there is generally great puffiness, from extravasation of blood, which will conceal in some degree the situation of the parts; but by turning the knee inwards the head of the thigh-bone may be felt.

It may be confounded with fracture of the neck of the thigh-bone, but can be distinguished from it, as in fracture the knee and foot are turned outwards; and although the limb is shortened more or less, according to the length of time which has transpired since the fracture, you may restore it to its natural length by extension, and if you rotate it while so extended you may feel a grating of the broken bone: the capability, then, of moving the limb and feeling the grating will be sufficiently distinctive signs. The hip-joint is sometimes displaced in consequence of disease, the gradual progress and history of which will in general point out its nature. Before the age of puberty, dislocation of the hip-joint from violence is an extremely rare occurrence, and hip disease leading to displacement is equally rare after that period of life. As there may be exceptions to this, it will require circumspection.

Mode of Reduction.—The body is to be fixed by a table-cloth or sheet doubled and passed round the pelvis and hip, and a smaller towel round the upper part of the sound thigh, the ends of both being carried over the hip on the sound side, and fixed to some immovable body, or firmly held by assistants. A wetted roller is now to be applied just above the knee, to protect the skin, and over that a round towel or table-cloth with a hitch noose, or a doubled towel, with the two ends passed through the doubled part. Professor Fergusson prefers a sufficiently long and strong skein of worsted. The knee should be slightly bent, and brought across the opposite thigh. All being securely fixed, extension is to be made firmly and steadily in the direction of the line made by the limb, resting a little at intervals. As soon as the head of the bone is brought to the edge of the socket, the limb should be gently and slightly rotated (calling off the patient's attention, as in other cases of dislocation, so as to relax the opposing muscles), and the bone will mostly slip into its place, or it may be guided in by pressing with the hand on the protuberance called the great trochanter, which may generally be felt on the side of the hip. In the greater number of cases the extending force of itself is sufficient. Should there be difficulty in bringing the head of the bone over the edge of the socket, it may be raised by the hand or by a handkerchief passed under the thigh, and lifted over the edge. A great deal of violent exertion is often necessary, and after all unsuccessful in a first attempt. Now and then, when great efforts have been used to no purpose, and the attempt given up in despair, a kind of collapse will supervene, when the muscles will become so flaccid that the application of a very slight degree of force, compared with that previously used, will produce the desired effect. When the accident has been of any long duration, it is advisable, in order to relax the muscular action, that tartar emetic be given in nauseating doses (of one grain), while the patient is in the warm bath of 100 to 110 degrees till he feels faint; and also that during the period of extension from 15 to 20 ounces of blood be quickly drawn from the arm.

After the reduction great care should be taken in putting the patient to bed, otherwise, in the now relaxed state of the muscles, dislocation may again occur.

Dislocation downwards (into the foramen ovale).—The limb in this case is two inches longer than the other, the body is bent forward, there is a flattening of the hip, the knees are widely separated from each other, and the head of the bone will be felt in a thin person at the upper and inner part of the thigh.

Mode of Reduction.—The apparatus being adjusted as before directed, the necessary extension and counter-extension are to be made in order to dislodge the head of the bone from the situation where it is imbedded; and then a napkin or handkerchief is to be placed under the thigh, by which the upper part of the bone is to be pulled outward, the extending force being gradually relaxed. The muscles generally draw it into the socket.

Dislocation backwards and upwards (or into the sciatic notch).—Of all the displacements of the thigh, this is the most difficult to detect, as the position of the limb is not so much changed with respect to the knee and foot as in the dislocation directly upwards. It is also the most difficult to reduce, because the head of the bone is placed behind the socket, and requires to be lifted over its edge as well as drawn towards it. The limb is from half an inch to an inch shorter than the other, the great toe rests against the ball of that of the opposite foot, the knee and foot are turned inwards (but less so than in the first variety), and the knee is slightly bent. The natural prominence formed by the trochanter is lost, and except in very thin persons the head of the thigh-bone can be scarcely felt, and then only by rolling it a little forwards. Flexion and extension are in a great measure prevented from the limb being firmly fixed.

Mode of Reduction.—The body and pelvis being fixed, and the bandages and apparatus adjusted, and a napkin also carried round the upper part of the thigh, bring the thigh over the opposite one, in the direction of which extension is to be made; at the same time an assistant should grasp the napkin with one hand, rasing the thigh, and with the other on the pelvis guide the head of the bone into the socket; or, what is preferable, a round towel should be passed under the upper part of the thigh, and carried over the shoulders of an assistant, who, while he raises his body gently, raises the thigh with it, resting both his hands on the pelvis to guide the bone to the socket.

DISLOCATION FORWARD, or on the pubes.—This displacement is much more readily detected than either of the other varieties. The limb is shorter, the knee and foot are turned outwards, and cannot be rotated inwards, and the head of the thigh-bone may be felt resting on the pubes like a hard ball, and will readily move on rotating or bending the knee.

Mode of Reduction.—The body and pelvis being fixed, and the apparatus adjusted, the patient is to be placed on the opposite side, and extension made on a line behind the axis of the body, and the head of the bone lifted with a napkin or round towel over the edge of the socket, and guided into it with the hands.

Mr. South says, that after a hip has once been dislocated the accident is liable to recur, and recommends the following mode of reduction as worthy of a trial. The patient and the operator both lie down on their backs: the hips of the former are to he held steady by assistants. The operator then puts his leg between the patient's, and presses his foot close up to the fork, which must be protected by a towel; he then grasps the patient's ankle with both hands, and pulls, and probably succeeds in replacing the bone, which goes in with a snap.

Dislocation of the neck is a most serious matter, either destroying the person on the spot, or causing complete palsy of every part below the injury. It may not be quite out of place to notice here *the so-called dislocation of the neck.* It will be occasionally heard among sporting people that "Mr. —— was thrown from his horse and dislocated his neck, but it was put in directly, and he rode on as if nothing had happened." Now in such a case there is no dislocation of the neck; all that happens is, that the person thrown from his horse pitches on one side of his head, which forcibly twists his neck in the opposite direction, and the muscles on the struck side being violently wrenched cannot recover themselves, and consequently the head remains fixed, looking over the opposite shoulder. The remedy consists in seating the man on the ground, and placing his shoulders between the knees of another person, who lays hold of the head with both hands, gives it a twist in the other direction, and all comes right. Mr. South has managed a case successfully in the same way in a man who fell from a ladder.

Dislocation of the elbow, if attended to directly after the accident, may often be easily reduced. The patient being seated in a chair, carry his arm well behind the back, make extension by the fore-arm with a napkin placed with a noose above the wrist; the elbow should afterwards be kept quiet in a bent position, by a bandage firmly bound on a splint similar to that used for a fracture.

Dislocation of the wrist.—The bones of the wrist may be displaced backwards, or forwards, or in a lateral direction: the last-named dislocation cannot be complete without considerable injury to the joint.

Mode of Reduction.—One person should grasp the fore-arm and steady it; the operator should extend the patient's hand, either by taking firm hold of the fingers, or by means of a handkerchief applied above the joint of the thumb; the muscles will direct the bones into their situation as soon as sufficient extension is made. The bones being reduced, a wetted roller should be applied round the wrist, and a splint placed before and behind, which should reach to the roots of the fingers, and be bound over by the roller.

Dislocation of the fingers and toes.—These are of very rare occurrence, as the joints are greatly strengthened by ligaments and tendons. The accident is to be managed by extending the finger or toe by means of a tape fastened round it with a hitch noose, a piece of wetted lint being first applied to protect the skin, while counter-extension is made by firmly holding the wrist or foot.

Dislocation of the thumb.—On account of the numerous strong muscles inserted into the thumb, its dislocations are very difficult to reduce. It may be managed in the same way as that of the fingers: the extension must be steadily continued for a considerable time, occasionally bending the thumb, but no sudden violence will effect the reduction, and unless it can be accomplished without, it should be left alone.

Dropsy.

Dropsy is a preternatural collection of water or serous fluid in some part of the body, and receives different names according to the part in which it is lodged. When the lymph or watery fluid is accumulated in the cellular membrane, it is generally called *anasarca;* when in a part only, it is called *œdema*, or the part is said to be *œdematous;* when the accumulation is in the abdomen, it is called *ascites;* when in the chest, *hydrothorax;* when in the head, *hydrocephalus;* when in the womb, *hydrops uteri;* and if in the scrotum, *hydrocele.*

When there is a collection of fluid in the cellular texture (anasarca), and at the same time an accumulation of liquid in the large cavities, as of the chest or abdomen, the complaint is called General Dropsy. The closed cavities and the cells of the cellular texture within which the fluid of dropsy is confined, are kept moist during health by a continual secretion from their surfaces; and they are kept merely moist, for the fluid thus constantly secreted is as constantly reabsorbed into the circulation.

Now the balance between secretion and absorption is often deranged, in consequence of which dropsies in great part arise. Dropsical effusion is in every instance produced by diseased action of the vascular system, and is the result of a morbidly affected secretion of the extremely small blood-vessels (or capillaries). This condition may exist in various degrees: it is sometimes so slight as to be scarcely observable, until, after resting on the feet for some time, the fluid accumulates about the ankles; at other times the integuments are everywhere stretched to the utmost, even to bursting; the insteps bulging out, the legs and thighs enormously enlarged and unshapely, watery fluid oozing through the pores of the skin, or partial blisters arising: the surface of the body and limbs mostly yields to the pressure of the finger like dough. The accumulation of fluid extends to the scrotum in males and the labia pudendi in females,—to the great discomfort of the parties, rendering them unable to close their thighs or lie on either side. In severe cases the upper extremities become implicated, as well as the face, neck, and chest. The fluid of dropsy changes its locality in obedience to the force of gravity: thus the eyelids and cheeks may be puffy and swollen in the morning, and the legs and ankles in the evening. The parts which show anasarca most plainly are those where there is most loose skin or cellular integument, as the eyelids and scrotum. Dropsies are spoken of as passive and active. Passive dropsy is associated with retardation of blood in the veins, and in many cases depends on mechanical congestion and defect of absorption by the veins. Active dropsy is associated with checked exhalation from the skin, or diminished perspiration, which is sometimes compensated by increased secretion of urine, and *vice versâ*;—but if exhalation from one organ or surface ceases, without a corresponding increased secretion by another having an external outlet, then dropsy must ensue, either into the cellular membrane or some of the cavities lined by serous membrane. Dropsy of one part frequently supervenes on the disappearance of water from another; as from the surface to the brain; thus, perhaps, unexpectedly producing coma. It may be transferred through a safer channel, as by an attack of common cholera, and vomiting and purging.

In most cases of anasarca the skin is dry, and there is much thirst, accompanied by flatulence and drowsiness; the urine is scanty, and deposits a red sediment. The swelling is observed to increase or decrease as the quantity of urine diminishes or augments. Dropsical swellings differ from other swellings by pitting on pressure.

Causes.—All circumstances productive of debility: exhausting evacuations, either occurring spontaneously or induced artificially—as hemorrhages, diarrhœa, dysentery;

copious blood-letting, or the abuse of purgative medicine; suppression of the customary secretions, as of perspiration and urine; obstruction to the free circulation of the blood, especially from diseases of the heart, lungs, and kidneys; also from jaundice and induration of the liver, from excess of drinking, particularly of ardent spirits, it being true almost to a proverb that drunkards die of dropsy; from the sudden disappearance of cutaneous eruptions; from eruptive fevers, especially scarlet fever; and partially from pressure on the veins of the extremities, as during pregnancy.

Prognosis.—The dropsy occurring in chlorotic young women is least dangerous; that arising after febrile disease, as scarlatina, is amenable to treatment; and local dropsies are relievable in proportion as the obstructions on which they depend are capable of being removed by fresh outlets. So far as mere removal of the water is concerned, passive dropsy depending on obstruction in the veins is more easily relieved than that depending on diseased kidney. The danger varies, according to the situation; as, dropsy of the surface or abdomen is less dangerous than that of the pericardium, chest, or head. Where anasarca is combined with ascites or dropsy of the chest the case is most unfavourable. Where general dropsy arises from disease of the heart or large blood-vessels in its neighbourhood, there is difficulty of respiration, and the cheeks and lips are occasionally florid, often purplish or livid, except in chlorotic women, where the heart is only temporarily disturbed, and the blood is thin and poor, and the face pale; where it originates in diseased kidney, there is a peculiar sallow dinginess of the complexion, from a lack of red blood in the extreme vessels.

The Treatment must vary in some measure with the cause, and be directed to get rid of the preternatural accumulation of fluid, and to prevent its collecting again. If the disease arise from intemperance, sedentary or indolent habits, or an unhealthy residence exposed to damp and cold, these must be corrected before any means for evacuating the fluid can be of permanent benefit. If there be disease of the heart, lungs, kidney, or any other viscera, the remedies appropriate for it should be employed. When the disease is of an inflammatory origin, bleeding has been spoken of, but it is in most cases a doubtful remedy.

We must therefore seek for other means of getting rid of the fluid, as by the kidneys, the bowels, or the skin.

For this purpose we employ diuretics, purgatives, emetics, diaphoretics, and tonics, either singly or combined.

If the patient be young, and the constitution good, and the disease has come on suddenly, it may generally be removed by emetics and brisk purgatives. An emetic not only increases the action of the absorbent vessels, but is a powerful remedy for the removal of visceral obstructions. A speedy absorption of the water of dropsical swellings is often produced by spontaneous vomiting. The most appropriate emetic for these cases is a scruple of the sulphate of zinc or copper (Nos. 109, 110), to which may be added, if tardy in its operation, a grain of tartar emetic. The emetic should be repeated every fourth or fifth evening, and every alternate night two or three grains of calomel may be taken at bed-time, and the following morning a drachm of the compound powder of jalap in a glass of peppermint water; should this not be sufficiently active, three grains of gamboge may be added to the draught, or a drop of croton oil added to the calomel and made into a pill with aromatic confection. The legs should be sponged with vinegar, or strong salt and water, every morning, and rubbed well, but not violently, for half an hour every night with the hand.

From five to ten grains of compound ipecacuanha powder made into a pill, or in a draught, with two drachms of Mindererus's spirit, one drachm of syrup, and one ounce and a half of camphor mixture, taken every night, will promote sleep and a gentle perspiration, which may be encouraged by a cupful of wine whey.

Another remedy for young persons is extolled by Buchan —viz. one drachm of nitrate of potash taken every morning in a glass of ale, or, what is preferable, in an infusion of horse-radish scraped, juniper-berries, and mustard-seed bruised, of each half an ounce, in a pint and a half of boiling water: this should stand for two hours, and then be strained, and a fourth part, with the drachm of nitre, taken for a dose. This plan must be continued for some weeks, and will be assisted by the occasional exhibition of an active purgative (pills Nos. 40 and 41). Diuretics for the most part are uncertain remedies. Where the urine on cooling throws down a brick-dust-looking sediment the alkaline diuretics should be given,—as the alkaline solution (No. 15); to this the tincture of squill and digitalis in full doses may be added; or the following:—

Take of Infusion of Digitalis, two ounces; Alkali Solution with Rhubarb (No. 15), half an ounce; Tincture of Squills, one drachm; Spirits of Juniper, half an ounce; Syrup of Orange-peel, two drachms; Water, or any bitter infusion, enough to make six ounces. Mix. A fourth part to be taken three times a-day.

The digitalis (or fox-glove) is most useful in feeble and flabby habits. Its effects should be carefully watched, as it sometimes causes fainting; and it is better to discontinue it at intervals. Sometimes a combination of several diuretics answers better than any one or two—see Diuretics, and the Mixtures Nos. 65, 66, 67, 68, 69, 70—either of which may be taken with a calomel pill (No. 34) at bed-time twice or thrice a week: on other occasions the pills (No. 64), with the imperial drink (No. 50), or the infusion of horse-radish, juniper, &c., as before mentioned, or decoction of broom. Of purgatives in dropsy, cream of tartar has attained great reputation: it may be given by itself or combined with jalap.

Take of Cream of Tartar, half an ounce; Powdered Ginger, two scruples; Honey, half an ounce, or sufficient to make an electuary. To be taken in four doses during the day, and each washed down with a wineglassful of the Decoction of Broom; or a drachm of the Compound Powder of Jalap may be taken every alternate morning.

Croton oil, gamboge, and elaterium are very active purgatives: their occasional exhibition affords considerable relief, although they often cause much griping. Of these, two of the pills (No. 34 or 35) may be taken twice or thrice a week at bed-time, and the infusion of horse-radish and juniper, or decoction of broom, or the imperial drink (No. 50) during the day. Elaterium is a very irritating cathartic, and requires caution in the exhibition (pills No. 36). The use of active purgatives should not be persisted in unless they afford great proportional benefit and diminution of bulk, as their continued employment will increase the debility and aggravate the disease.

The diet should be mild and nourishing: a moderate portion of wine may be allowed, or a small quantity of spirits; as common drinks to allay thirst, cold water, table-beer, or rennet whey. Regular exercise should be taken in proportion to the powers. The strength of the feeble must be upheld by suitable tonics: the mixtures (Nos. 122, 123, 124) will be useful, and that with tincture of iron (No. 129) particularly so.

In the chronic form, where the kidneys are more affected, and where there is pain in the loins, dry cupping will be beneficial, or a moderate quantity of blood may be taken with caution. It is better in these cases not to stimulate the kidneys by active diuretics, but to trust more to purgatives and sudorifics.

Dr. Graves says, that whenever you find sweating in dropsical cases you should obey the hint given by nature. You should not under these circumstances have recourse to mercury, or violent purgatives or diuretics, but you should open the passage which nature has pointed out, and encourage perspiration, and you will in this way effect an easier, safer, and more permanent cure than you could by any of the various other modes employed for similar purposes.

From three to four or five grains of compound ipecacuanha powder may be given three times a day, with five grains of nitrate of potash, which may be changed after a few days to half a grain of opium with two grains of James's powder; and at this time the hot air- or vapour-bath will be particularly beneficial. These measures failing, cream of tartar in the form of electuary may be given, or the imperial drink (No. 50), with from fifteen to twenty minims of the tincture of digitalis in the latter, three times a day.

When all these remedies prove ineffectual we may have recourse to mechanical means, in imitation of nature, who sometimes affords relief by oozings of fluid through the skin, or establishing superficial sores. The best mode of doing this is to prick the part quickly, so as to give as little pain as possible. The point of the needle should merely penetrate the true skin: the punctures may vary in number from twenty to fifty or sixty, including the legs, thighs, scrotum, or labia pudendi, according to the size of the part and extent of the effusion, and they should be at least an inch asunder.

"By observing these means you will succeed in evacuating the water without running the risk of exciting erysipelas, which in such cases is apt to lead to disastrous consequences. The judicious application of acupuncturation in cases of chronic dropsy often accomplishes a great deal. (Dr. Watson has known eleven ounces and a quarter to escape from one puncture in the thigh in an hour.) When the anasarcous œdema has thus drained away, the fluid in the peritoneal cavity (belly) is more rapidly absorbed; in some cases the good effects of external drainage on the ascites are so rapid, that we are led to believe that some direct communication may exist between the subcutaneous tissue and the apparently shut sac of the peritoneum" (*Graves*).

When there is any appearance of erysipelas, the patient should be kept in a recumbent posture, and the parts bathed with the spirit lotion (No. 149). Violent convulsions sometimes occur in chronic dropsy, which Dr. Graves considers to arise from congestion. They should be treated by cold affusion from a small stream of cold water on the head, the patient being held with the body upright, and the shoulders covered with oiled silk or some other material, to prevent the water from wetting the body. Leeches should be applied to one side of the neck, the feet immersed in a mustard-bath, and aperients administered.

ASCITES, OR DROPSY OF THE BELLY.—In this the fluid is usually in the general cavity of the peritoneum. It should be distinguished from encysted or ovarian dropsy, from the tumor of pregnancy, and from morbid distension of the bladder in consequence of retention of urine, and also from collection of air (tympanites). In ascites there is greater width and bulging out of the sides, the fluctuation is more distinct on striking the abdomen, and the bulk falls over on the patient moving from one side to the other: there is also more constitutional disturbance. In encysted dropsy, where the fluid is contained in a cyst or bag, the fluctuation is not so distinct; and unless in cases of very long standing, the margin of the cyst can be readily traced. In pregnancy the fluctuation does not extend so high up,—the health is not interfered with, and there will be the accompanying signs of that state. In cases of retention of urine there will be dribbling of urine, and other symptoms characteristic of that disease. In tympanites the belly will sound on tapping with the hand, and there will be no fluctuation.

Chronic ascites is caused by the enlarged liver (commonly the result of intemperate habits, particularly spirit-drinking) or abdominal tumors—as of the mesenteric glands—pressing on and interrupting the circulation through the portal vein: it is not unfrequently preceded by jaundice, and sometimes accompanied with enlarged spleen.

In chronic ascites the treatment already laid down will be applicable; in addition, a firm belt should be worn round the abdomen, which should be rubbed every night with oil. Where the liver is evidently enlarged, or there exists any abdominal tumor, the treatment should be directed against the cause of the dropsy. The abdomen should be rubbed with the ointment of iodide of potassium, or the pill No. 64*a* taken every night, with the following mixture during the day:—

Take of Sesquicarbonate of Ammonia, half a drachm; Sweet Spirits of Nitre, half an ounce; Tincture of Digitalis, one drachm; Camphor Mixture, sufficient for six ounces. Mix. A fourth part to be taken twice a day.

Or two of these pills may be taken with each dose of the mixture, instead of pill No. 64*a*:—

Take of Mercurial Pill, two grains; Extract of Taraxacum, one scruple. Mix for four pills.

It often happens, after all the measures heretofore suggested have been tried, that we shall be disappointed, and be obliged to have recourse to the operation of tapping, or letting out the fluid by puncturing the abdomen with a trocar. It is a safe operation, and generally relieves the patient for the time; but the fluid almost invariably collects again, and a repetition of the operation afterwards will be frequently required; so that as a general rule it is advisable not to have recourse to it in the first instance except from urgent necessity.

Ovarian dropsy.—Ovarian dropsy consists of enlargement of one or more of the vesicles or cysts of the ovary. Sometimes there will be fluid in one cyst, and in others a gelatinous or fleshy substance: in some rare cases there will be fluid in a cyst unconnected with the ovary.

Symptoms.—At first a tumor on one side, mostly deep-seated, between the navel and the groin, where it gradually increases and occupies the greater part of the cavity of the abdomen. The general health is rarely affected until the tumor has attained such a size as to interfere by pressure on the neighbouring parts. Occasionally, before it acquires any considerable magnitude, it may be so situated as to interrupt the expulsion of fæces from the bowels, or urine from the bladder. The cyst is sometimes as thin as a bladder, at others it is an inch or more thick. The period of its occurrence is between the age of puberty to the termination of the period of child-bearing. It is always a serious disease, but it may continue for years without proving fatal, or even being troublesome. It sometimes, although very rarely, runs a rapid course; at others, after attaining a certain size it remains stationary. On some occasions the cyst has burst, and the fluid has escaped into the general cavity of the abdomen; on other and more fortunate ones, the fluid has made its way out through the intestines or bladder, or by the vagina or the navel, and the patient has got well.

Treatment.—That laid down for the treatment of ascites will be equally appropriate here; but for the most part, unless called upon by urgent symptoms, the less the disease is interfered with the better. If there be pain or tenderness over the seat of the tumor, the application of a few leeches, followed by fomentation and poultices, will afford relief, and the saline anodyne mixture No. 27 should be also taken. Under other circumstances the salt and water hip-bath, the moderate support of a belt round the abdomen, and attention to the general health, will be the most suitable means to employ. Patients affected with ovarian dropsy may live to old age in a tolerably comfortable state, except from the inconvenience of the bulk of the abdomen.

Where the tumor from its size becomes unbearable, the operation of tapping must be resorted to, but only when it is indispensable: the operation always affords relief, but is not entirely void of danger. There are cases where once tapping, both in this disease and in ascites, has effected a cure, but these are exceptions: the cyst generally soon fills again, and its evacuation will be required at short intervals for years. There are other modes of relieving this disease, as by extirpation of the cyst, or establishing a drain from the sac, both of which require great circumspection.

HYDROTHORAX: DROPSY OF THE CHEST; DROPSY OF

THE HEART.—This is a collection of fluid in the cavity of the chest or in the pericardium. Hydrothorax is rarely or never an idiopathic disease, but is consequential on some previous disorder of the viscera of the chest; as the lungs, heart, or their investing membranes the pleura or pericardium.

Symptoms.—Great difficulty of breathing, increased upon exertion, and most considerable during the night, when the body is in a horizontal posture; distressing sense of weight and oppression at the chest; countenance pale, sometimes purplish, and expressive of anxiety; urine small in quantity, great thirst, anasarca of the upper extremities, pulse irregular and intermitting, palpitation of the heart, and cough, with expectoration tinged with blood; the patient experiences a sensation of breathing through water, and a difficulty of lying on one side, and when the disease exists in both cavities of the chest he is incapable of lying down at all; his sleep is disturbed by dreadful dreams, from which he awakes frequently with a sense of suffocation; the arm of the side in which the water is collected is generally cold and torpid, and often affected with numbness, &c.

Where the fluid is in the pericardium, there is an apparent enlargement in the region of the heart; the symptoms are all more aggravated, the countenance is more dusky and suffused, and the sufferer is fearful of lying down.

Treatment.—The same as in general dropsy,—drastic purgatives, diuretics, &c., modified according to the state of the patient and existing symptoms; but the progress and termination are for the most part so unfavourable that it should at once be consigned to medical care.

DROPSY OF THE BRAIN—see Hydrocephalus.

DROPSY OF THE SCROTUM—see Hydrocele.

DYSENTERY; BLOODY FLUX.

Dysentery is not now a very common or serious disease in this country; it formerly raged in London like a plague; from one thousand to four thousand died annually of the "bloody flux," or "griping of the guts," in the seventeenth century. During the last century the number gradually dwindled down to twenty. Dysentery is one of the pests of hot climates, and Sir James M'Grigor, the late Medical Director General of the Army, calls it the "scourge of armies, and the most fatal of all their diseases." In two years the British army in Spain lost by this complaint four thousand seven hundred and seventeen men. "The remarkable decline of dysentery in this metropolis has been contemporary with that of some other severe disorders, and is due to the same combination of causes. For nearly two centuries we have had no plague. Agues and continued fevers, formerly very rife, have almost disappeared, or are comparatively unfrequent. I believe that we may trace these great blessings to an event which was regarded by many at the time as a national judgment; I mean the great fire that in 1666 consumed everything between Temple Bar and the Tower. The streets and houses thus destroyed had been filthy in the extreme, close, densely crowded, and consequently most unhealthy: to the better construction of the houses and of the streets in the rebuilt city; to the increased means of ventilation; to the general formation of drains and sewers; to the more copious supply of water; and to the more temperate and cleanly habits of the people, we may fairly ascribe our present exemption from dysentery, from ague and continued fever, which are often the parents of dysentery, and from the plague itself" (*Watson's Lectures*).

The Symptoms are griping pains in the belly, succeeded by straining, tenesmus, and frequent mucous or bloody stools, generally without any natural fæces intermixed; or if fæces be present, they are usually in the form of small, hard, compact substances, called scybala. In chronic cases matter is sometimes discharged from the bowels.

An attack of dysentery is sometimes preceded by loss of appetite, costiveness, flatulency, sickness at the stomach, and a slight vomiting, and comes on with chills succeeded by heat in the skin and frequency of the pulse. These symptoms are in general the forerunners of the griping and increased propensity to stool which afterwards occur; but it sometimes happens that the local affection is perceived first.

Dysentery consists in inflammation of the mucous membrane of the large intestines; it does not commonly extend through their whole course, but chiefly affects the lower portion of them, as the descending colon and rectum. When the upper portion is affected, the stools at the commencement are in great measure composed of excrement in an unnaturally fluid state, mingled with blood and slime.

When the inflammation attacks the lower part of the intestinal tube, the stools become more frequent and less abundant, and in passing through the inflamed parts they occasion great pain, so that every evacuation is preceded by a severe griping; there is also a rumbling noise, and unusual flatulence in the bowels.

The pain is often very severe, but is subject to remissions and exacerbations, and the surface of the abdomen is always more or less tender. The patient is tormented by a sensation of excrement ready to be dislodged, goes perpetually to the night-chair, and is irresistibly impelled to strain violently to get rid of the irritation. He discharges but little; and that little consists of a jelly-like mucus, more commonly mixed with blood, membranous shreds, and apparent fragments of skin and flesh. It is very rare for excrementitious matter to pass; when it does so, it is in the form of hard balls, as before mentioned.

The motions vary both in colour and consistence, being sometimes composed of a frothy mucus streaked with blood, and at other times of an acrid watery humour, like the washings of meat, and of a very fetid smell. Sometimes pure blood is voided; now and then lumps of coagulated mucus, resembling bits of cheese, are to be observed, and in some instances a quantity of purulent matter is passed.

It frequently happens, from the violent efforts which are made to discharge the irritating secretions, that a portion of the gut is forced beyond the verge of the anus, which in the progress of the disease proves a troublesome and distressing symptom, as does likewise the tenesmus, and the inclination to pass urine, as the irritation extends to the bladder, which adds considerably to the uneasiness. All this local suffering is accompanied by continual febrile restlessness and anxiety. The nights are sleepless, or dreamy and disturbed, and the patient is low-spirited and desponding. In fatal cases the pulse becomes very small and rapid, the features sharp, and the surface cold.

Slight and simple dysentery may occur and run its course with little or no disturbance of the circulation. In this and similar climates it is chiefly an autumnal disease, and appears to be occasioned by cold and damp weather immediately succeeding intense heat or great drought, whereby perspiration is suddenly checked, and a determination of blood made to the intestines. It is much more prevalent in tropical climates, and more severe when rains succeed to long-continued droughts. The body being rendered irritable by the previous heat, and then immediately after exposed to cold and wet, the blood is driven from the surface to the interior, and the vessels become congested so as to give rise to dysentery. The dysentery of tropical climates is usually connected with disease of the liver, but whether as a cause or consequence is not quite manifest: sometimes the derangement of the liver precedes the dysenteric symptoms, at other times it succeeds them; and in some instances both diseases appear at the same time, and run on together.

Causes.—Exposure to wet and cold, the use of unwholesome food, noxious exhalations and vapours, malaria, and contagion. The temperature of the weather and season of the year have great influence in the production of dysentery, as in other bowel affections. A high degree of heat seems to be the predisposing, and exposure to cold the exciting cause. Sudden variations of temperature, such as occur even in the torrid zone, viz. scorching days followed by extremely cold nights, are very likely to bring on an attack. Dysentery is not in this country to be considered contagious; that is, we never see it spreading from one individual to another. Some authors attribute all the bad symptoms to the presence of scybala, others consider that they have no connection with the disease, as in many dysenteries there are none at all. Dr. Graves says, "I believe that there are certain dysenteric states of the great intestine, in which the main cause of the disease arises from the lodgment of quantities of hard, unhealthy, and long-retained fæcal matter; but in cases of epidemic dysentery I do not think that scybala have anything to do with the formation of the disease."

The diseases with which dysentery may be confounded are cholera, bleeding from piles, and diarrhœa.

The rapid progress of cholera contrasted with the duration of dysentery is a marked distinction. Cholera is a most acute disease: it usually ceases in twenty-four hours, and perhaps never lasts above two or three days; while the mean duration of dysentery is at least a fortnight, and in many cases months. The piles or hæmorrhoidal flux will be distinguished by the blood flowing from the commencement of the disease unmixed with mucus, the freedom from abdominal pain, and the usually solid nature of the fæculent discharges. The distinction between diarrhœa and dysentery is obvious: in both there are griping pains, and the stools are frequent and relaxed, but in diarrhœa the stools are fæculent; in dysentery there is rather retention of the natural fæces; and straining and tenesmus, with the expulsion of mucus mixed with blood, are not common in diarrhœa, whereas in dysentery they are constant and characteristic.

When the symptoms run high, and are accompanied with violent irritation of the whole intestinal tube, great prostration of strength, strangury, and hiccup, or with a putrid tendency, and fetid involuntary discharges, the disease often terminates fatally in the course of a few days; but when they are more moderate it is frequently protracted to a considerable length of time, and induces great emaciation and debility, but goes off at last by a gentle perspiration diffused over the whole body; the fever, thirst, and griping then ceasing, and the stools becoming of a natural colour and consistence. When the disease is of long standing, and has become habitual, it seldom admits of an easy cure; when it attacks a person labouring under an advanced stage of pulmonary consumption, or whose constitution has been much impaired by any other disorder, it is sure to prove fatal. It sometimes appears at the same time with autumnal intermittent and remittent fevers, and is then more complicated and difficult to remove.

A great degree of tenesmus, severe griping pains, frequent inclination to go to stool, and but little voided, much depression of strength, fetor of the evacuations, a tense abdomen, violent fever, cold clammy sweats, coldness of the extremities, aphthæ, hiccup, the tongue preternaturally red and dry, petechiæ, the pain suddenly ceasing, and a weak irregular pulse, are to be regarded as very unfavourable symptoms: whereas a gentle and universal perspiration, moderate fever, the evacuations becoming less frequent and more of a natural consistence, and a gradual diminution of the griping and tenesmus, are favourable circumstances. The disease is very liable to recur from any exposure to cold, wet, or fatigue.

Treatment.—This must be directed to subdue the local inflammation, to allay irritation, and to restore the healthy state of the secretion of the skin and kidneys. The common form of dysentery in this country generally yields readily to appropriate treatment, such as the exhibition of mild aperients and opiates, together or alternately. Blood-letting is not often required; but if there be much tenderness from pressure on any part of the abdomen, the application of from six to twelve leeches will be beneficial, followed by a large warm poultice or hot fomentations. A full dose of castor oil, which is the best of all purgatives in dysentery, may then be given; or the sulphate of magnesia, or mixtures No. 23 or 38. Rhubarb has been objected to on account of its astringency; this may be obviated by combining it with magnesia: a scruple of each may be given in a glass of peppermint-water. If the disease did not commence with diarrhœa, an injection of gruel or barley-water may be administered to assist the operation, after which an opiate ought to be given. This may consist of ten grains of the compound powder of ipecacuanha in a saline draught, which will assist its action on the skin: it should be repeated night and morning, and the aperient every other day. The patient in most cases is better confined to bed, and should take freely of diluent drinks, as barley-water or whey, in which one ounce of gum arabic may be dissolved in each quart, or thin arrow-root jelly, or sago; and for diet, veal, chicken, or mutton broth. Dr. Buchan speaks highly of sheeps' head broth, or milk thickened with boiled or baked flour, which is made by boiling a few handfuls of fine flour, tied in a cloth, for six or seven hours, till it becomes a hard mass. Two or three tablespoonfuls of this may be grated down, and boiled in such a quantity of new milk and water as to be of the consistence of pap. This may be sweetened to the patient's taste, and taken as his ordinary food.

The abdomen should be kept warm by a flannel roller, and rubbed with the opiate liniment (No. 132). In mild or common cases this treatment will generally suffice. In more intense forms of the disease it may be necessary to employ a greater number of leeches in the first instance, and to repeat their application, or to put a blister on the abdomen. Where there is much stuffiness or fulness of the bowels, or biliary derangement, characterised by a furred tongue, dull pain in the region of the liver and of the right shoulder, with a dusky yellow colour of the skin and of the eye, and the patient is uneasy except when lying on the right side, a dose of calomel of from three to five grains should be given at night, and from one to two tablespoonfuls of castor oil the following morning. This may be repeated for two or three days in succession, and the calomel at night may be combined with a grain of opium, or what is preferable, with ten grains of Dover's powder. If the disease be protracted, it may be requisite to give mercury in more frequent doses, as in the following form :—Take of mercury with chalk (grey powder), three grains; Dover's powder, five grains: made into two pills, with mucilage or syrup, to be given every four hours till the symptoms subside, but not to affect the mouth. When the tenesmus is distressing, an opiate enema of half a drachm of laudanum, mixed with two ounces of starch, should be administered slowly, with a view to its being retained at bed-time. Where the end of the bowel is too sore for its employment, a suppository of one, two, or three grains of solid opium may be passed up the bowel with the finger, "as whatever procures respite from pain mostly proves of permanent benefit." A piece of flannel well moistened with laudanum, or a fresh warm opiate plaster, should be applied over the abdomen, which should be swathed in flannel passed round sufficient to afford moderate support and warmth, but not too tight. A warm bath, hot fomentations, or large poultices to the abdomen, are at all times useful, and the diluent drinks and diet, as before mentioned, should be employed. Strict attention to cleanliness, the removal of all foul smells, and thorough ventilation, should be attended to. After the severity of the disease is mitigated the diet should be gradually improved, and some of the mild bitter tonics (Nos. 122, 123, 124) given. Costiveness should be carefully prevented by gentle purgatives, or moderate portions of fresh fruit; and relapses guarded against by wearing warm clothing next the skin, and avoiding exposure to damp and night air. When the disease is disposed to run into the chronic form, stimulating applications—as mustard-poultices, the liniment (No. 138), the opiate liniment (No. 132), or a large opiate plaster—applied to the abdomen, change of air, tepid sea-bathing, the nitric acid mixture (No. 124), or steel mixture (No. 128), and one or two grains of powder of ipecacuanha made into a pill with Castile soap every night, and the administration of an injection of three or four ounces of lime-water, with or without laudanum, daily, with a moderately generous diet and a portion of fresh fruit, if desired, promise the most relief. Dr. Graves says, "I have found several cases (of chronic dysentery) which had obstinately resisted the most varied remedies assiduously employed, get well rapidly after a liberal allowance of meat was given."

DYSPEPSIA OR INDIGESTION

Is a state of stomach in which its functions are disturbed or the food contained in it imperfectly dissolved. This very common disease manifests itself generally in a want of appetite, nausea, perhaps vomiting, furred tongue, flatulence, heartburn, water brash, eructations of various kinds, occasional pain in the pit of the stomach, a sense of fulness and oppression after eating, or a feeling of languor and depression relieved by taking food, sudden and transient distension, rumbling noise in the bowels, and frequently costiveness or diarrhœa. A long train of nervous symptoms are also very common accompaniments. In some cases a few only of the above symptoms are present, while in others many additional ones are experienced, such as disturbed sleep, severe pains in the head or over one eye, vertigo, dimness of vision, spots floating before the eyes, noises in the ears, palpitation, shooting or fixed pains in the region of the heart and under the blade-bone, varying with the degree of flatulence, coldness of the limbs and extremities, generally attended with a burning sensation in the soles of the feet and palms of the hands before rising in the morning. Sometimes, with many of the foregoing symptoms there is a good deal of feverish heat, accompanied by thirst, a dry and scurfy state of the skin, and sallowness of complexion: the complaint is often erroneously called bilious, and in more severe and obstinate cases is referred to the liver. The biliary secretion is frequently deranged, but it is for the most part a sympathetic or secondary affection, dependent upon the disordered state of the stomach. Dyspepsia is a very common disorder, but disease of the liver is very rare. When the functions of the stomach and those of the liver are both deranged, it may be that the stomach sympathises indirectly with the state of the liver, or that one and the same cause operates by producing disorder in both. The process of healthy digestion has already been described (see p. 41); and it was then shown that it was necessary that the food should be reduced to a state of minute division by mastication. A feeble dyspeptic stomach acts slowly or not at all on large solid lumps or tough masses of food. The food which remains undigested, aided by the warmth of the stomach, undergoes putrefaction, and gases are extricated and acids formed; perhaps it is at length expelled by vomiting, or passes undissolved into the duodenum, and becomes a source of irritation and disturbance during the whole passage through the bowels. "Here, then, we have one common cause of indigestion, and an easy and obvious preventive. Dyspeptic persons should not eat in a hurry: the food should be well ground in the mill that nature has provided for that purpose. It is probable that the increased longevity of modern generations is in some degree attributable to the capability of chewing their food, which the skill of the dentist prolongs to persons having defective teeth" (*Watson's Lectures*).

The husks of fruit and grain, horn and hair, are not all digestible; dried currants, pips of apples, and grape-stones, may often be observed to pass off entire in the motions. Whatever passes the stomach undissolved by the gastric juice goes through the alimentary canal in a similar state, sometimes provoking disorder in its passage, sometimes forming a nucleus for intestinal concretions. Such substances are unfit for a weak stomach; though when the digestive powers are active and the bowels sluggish they may be useful. Thus brown bread, which contains a certain portion of bran, stimulates the peristaltic motions of the intestines, and obviates, in those habitually costive, the necessity of purgative medicine. Unbruised mustard-seed, lately so highly esteemed, owed much of its reputed good effects to this cause. Undigested substances may remain in the stomach for days, or even weeks, causing considerable disturbance, and are mostly at length thrown up by vomiting, to the great relief of the sufferers.

The causes are very numerous, as anything which enfeebles the system generally or the stomach in particular; also many states of mind and habits of life, which have no direct relation with the organs of digestion, yet exercise considerable influence over their functions; as deficient exercise, sedentary habits, intense study, mental toil, want of cleanliness of the surface, irregular habits, the undue use of ardent spirits, opium, or tobacco, indulgence to excess in food or drink, improper mastication, eating too rapidly, rigid abstemiousness, too long intervals between meals, taking them too frequently or too close together, uneasiness or distress of mind, the abrupt communication of a piece of bad news (which will destroy the keenest appetite), and the abuse of purgative medicines, which enfeeble the frame and rob the intestines of the mucous secretion so essential to their regular action, and hence induce a torpid state of bowels.

Treatment.—Attention must first be directed to correct any bad habits that may have given rise to the disease, and to regulate the diet; secondly, to restore the strength of the stomach, to promote healthy secretions generally, and to palliate urgent symptoms. With the first object, excessive intellectual labour must be abandoned or abridged, and sufficient and regular exercise taken. Walking is the best, as it promotes the secretions; next, riding on horseback, as it gives motion to the abdominal viscera: riding in a carriage changes the air and the scene, but it is not so effective as either of the other two. A healthy and cleanly state of the skin should be induced by washing, sponging, and friction with a flesh-brush, horse-hair gloves, or coarse towels. All irregular habits should be discontinued, and excess of food and drink diminished. Eating too abundantly is a common vice of the present day; it over-taxes and impairs the powers of the stomach by over distending it. The quality of food is of less importance than that the quantity should be in proportion to the powers. As it occupies from three to four hours to digest a meal, and as the stomach should also be allowed some hours for repose, the meals should not follow too quickly upon each other, thus at one time overloading the stomach and in the intervals leaving it too long empty.

Animal food is easier of digestion in the human subject than vegetable food: a much less quantity is needed, it is not so likely to generate acidity, and it is nearer in its composition to the texture with which it is to be incorporated by digestion; containing, indeed, the same substances as the body consists of—consequently less power of conversion is requisite. Vegetable food, when the stomach is weak, is more likely to be followed by flatulence, and is digested more tardily, and with greater difficulty; nevertheless, a mixture of the two is to be preferred; well-roasted or boiled flesh or fowl, and a moderate quantity of thoroughly cooked vegetables taken at the same time, are infinitely better suited to a feeble stomach than a rigid adhesion to either kind taken singly. These facts are for the most part authenticated by Dr. Beaumont, an American physician, who had the opportunity of watching the process in Alexis St. Martin, a Canadian, part of whose stomach and ribs had been shot away; a fistulous opening into the stomach remaining, through which its operations were actually seen. The subject of food has been already discussed (see pages 57 to 60), but the following remarks may be added. The more simple the food, and the more soluble it is in water, the better is it suited for digestion; hence all meats hardened by the art of cooking, and all savoury dishes and cured meats, such as ham, tongue, sausages, &c., should be avoided by those with weak stomachs. Of meats generally, mutton is most to be commended; then beef, game, and venison. White fish, when boiled, agrees with most people. Of vegetables, French beans, spinach, brocoli, cauliflower, and potatoes if mealy and roasted, are wholesome; for valetudinarians, it may be better that they should confine themselves to one kind of meat each day, and not be too restricted as to the articles of diet, or they may be rendered fastidious and morbidly alive to the sensations of the stomach, and on the subject of feeding. Many individuals have their peculiarities (idiosyncrasies, as they are termed), and cannot digest what is generally considered most wholesome and appropriate; such as have acquired this knowledge by experience, must be guided accordingly. Some cannot digest mutton in any form, there are a considerable number with whom veal disagrees, eggs have a poisonous effect on others, mackerel disturbs many people, in others shrimps produce a scarlet rash on the skin, and strawberries have sometimes a similar effect. Meat should be only once dressed, and not hashed or stewed; it should be eaten slowly, and well masticated; and when this cannot be done from faulty teeth, it should be well divided on the plate, and turned about in the mouth before it is swallowed, by which it becomes imbued with saliva and is better prepared for the action of the stomach. For drink, water is the best; but as it is extremely difficult to overcome settled habits, and as persons are fearful of sudden change, (which, however, as regards drinks is for the most part groundless,) some light beer may be allowed; but when there is flatulency or indigestion, a moderate quantity of sound spirits, mixed with water, and taken cold, is to be recommended; next to this is good wine and water. With regard to wine, that should be selected which is most congenial to the stomach, but the quantity should never exceed two glasses during and after dinner. Persons of feeble stomach, who pass a long interval between breakfast and dinner—as from 9 to 6 or 7 o'clock—should take at noon a biscuit or some similar substance, and then a glass of sound wine may be beneficial. An excess of drink with meals is objectionable, as it must be absorbed before digestion begins, and thus protracts the process: if taken frequently to assist in the propulsion of the food, it favours its being swallowed in large pieces; taken afterwards in unnecessary quantities, it distends the stomach and produces flatulency. No rule can be set down as to how much, but a certain portion is essential. The quantity of drink, as well as of solid food, is of more importance than its quality. After the dinner meal, repose and cheerfulness are most favourable to digestion (for this reason Sir J. Eyre says that the keeping of a clever fool, as in by-gone days, would be remunerative to those who can afford it). Tea, coffee, and cocoa, in moderation, are exhilarating and beneficial, cocoa perhaps being the most nutritive of the three; but any of them, taken in large quantities, enfeeble the stomach; some well-baked bread, in the form of bread and butter, dry toast, or biscuit, should be taken with them, and to those who follow active pursuits, an egg, or cold meat, or toasted bacon, may be allowed for breakfast. Too rigid abstemiousness or protracted meals are perhaps more pernicious than the opposite extremes. It is said that the late Lord Byron seriously injured his health from his great dread of corpulency. He would abstain from food for days together, and then, to appease his hunger, would take a wafer and a glass of brandy.

The ordinary quantity of *sleep* required by the adult is from six to eight hours. Children and feeble people want more. Provided sufficient sleep be obtained during the night, it matters not what hours be selected. Its regularity as to quantity is one of the circumstances that contribute most to the preservation of health.

Distress of mind is a frequent cause of indigestion. There are some persons who nurse their troubles, and who will not "see the beautiful blue sky bordering on the dark cloud of their distress;" these often shun their meals, and thus add bodily infirmity to mental disquietude: they require encouragement and commiseration more than medicine. There are others, as hypochondriacs, whose maladies are in great measure imaginary, whose minds are anxiously occupied by their own miserable feelings, and who are ever despondent of their recovery. Provided this state be not induced by a long course of dissipation, it is curable; but such cases require great tact and management, and must not be treated slightingly. The mind should be diverted from self, by change of scene and change of air: a continental tour, perhaps, is best; next, the various spas and watering places, as a course of the waters at Cheltenham, alternated with tepid sea-bathing, succeeded by a residence at Tonbridge Wells, and in the winter at Bath. Dr. Watson says that six weeks among the mountains of Switzerland, or upon the rivers in Germany, will often do more towards restoring a dyspeptic hypochondriac than a twelvemonth's regimen and physicking at home.

Having considered the mode of treatment of dyspepsia in general, we now come to that for the palliation of urgent symptoms.

Want of appetite.—Where this is the only symptom, and occurs without any assignable cause, the bitter tonics will be most applicable, as the mixtures Nos. 119, 121, 122; when accompanied by occasional pain at the pit of the stomach No. 120; or where there is depression of spirits, No. 118; and a couple of the following pills may be take every night, or every other night.

> Take of Powdered Rhubarb, half a drachm; Castile Soap, one scruple; Powdered Ginger, twelve grains. Mix, and make into twelve pills.

Nausea and Vomiting.—This will sometimes occur directly after food has been taken, at other times not till an hour or more has elapsed; in some there will be distressing nausea without vomiting, in others vomiting unpreceded by nausea. The matters ejected are mostly sour; and where the vomiting is violent, bile will be thrown up, from the perverted action of the duodenum, and not necessarily from a disordered state of the liver. The vomiting depends on irritability of the stomach, and in some cases it is most difficult to overcome. In the first place it may be well to clear the stomach by an emetic of ipecacuanha, and afterwards the bowels by two or three grains of calomel or blue pill at night, followed in the morning by a compound senna draught, and then the saline mixture in a state of effervesence, and a mustard poultice to the pit of the stomach: or hydrocyanic acid may be given in doses of from one to three minims, with five grains of bicarbonate of soda every two, three, or four hours, in a glass of water; or the creasote mixture (No. 80); and for beverage, lime-water and milk. These means failing, two or three leeches may be put to the pit of the stomach, and one grain of calomel, with three of chalk or magnesia, laid on the tongue in powder, and swallowed gradually every four or six hours; also small lumps of ice allowed to dissolve slowly in the mouth, and swallowed; and a succession of blisters the size of a shilling may be usefully applied along the margin of the ribs. In very adverse cases, only so much food should be given as the stomach will retain; as a teaspoonful of milk or beef-tea once in two or three hours; by allowing the stomach to remain at rest, it will often become tranquil. The action of the bowels should be solicited daily by an enema of beef-tea, or mutton or veal broth administered slowly, and in such quantities only as may be retained for some time, and thus a portion be absorbed for nutriment; and the sufferer should be carried out or walk out in the air if the weather will admit of it. This state will occasionally go on for weeks or months, and still the patient may recover.

Flatulence and Eructation may mostly be relieved by the meals being regular and not hurried. One or two of the rhubarb and soap pills before mentioned may be taken before dinner, or the powder No. 48; and at other times a teaspoonful of sal-volatile in a glass of peppermint water, or in fresh-made chamomile-tea, twice a-day.

Heart-burn and Water-brash.—The antacid mixture No. 1 will be found useful in this case. Where these affections are accompanied by much pain, from 5 to 10 grains of the trisnitrate of bismuth, with the same quantity of magnesia, may be tried; or the following mixture:—

Take of Trisnitrate of Bismuth and Magnesia, of each two scruples to a drachm; Tincture of Aloes and Tincture of Hop, of each half an ounce; Water, sufficient to make six ounces. Mix. A fourth part may be given twice a-day.

Ten or twelve minims of laudanum may sometimes be beneficially added. In cases where it is of some duration, the preparations of iron, as the compound steel pill, or the mixtures Nos. 128, 129, or ten grains of the sesquicarbonate of iron, may be taken three times a-day in honey, and continued for two or three weeks; or the oxide of silver in half-grain doses, with a little compound tragacanth powder, three times a-day; or the following pill:—

Take Oxide of Silver, half a grain; Extract of Henbane, one grain. Mix for a pill; to be taken three times a-day.

Sometimes the pain appears to be of a nervous character, and is excited suddenly by anxiety, alarm, anger, or any article of diet disagreeing with the stomach, or by walking directly after a meal to the extent of fatigue, and will come on in the night during sleep: at the moment, a large mustard poultice should be applied to the pit of the stomach, from twenty to thirty or forty drops of laudanum given in brandy and water or peppermint-water, and afterwards the trisnitrate of bismuth, carbonate of iron, or oxide of silver, should be taken for some weeks, or a course of bitters with mineral acids (see mixtures Nos. 124, 125, 126, 127), and at the same time the region of the stomach should be well rubbed with one of the stimulating linaments (Nos. **136, 136*a***, 137, or 138).

When the nervous system is exhausted by anxiety or spirit-drinking, or from the pernicious effects of opium or the inveterate use of tobacco in the form of chewing, smoking, or snuffing, and the prominent symptom is violent cramp or pain in the stomach, opium or morphia in very moderate doses may be usefully combined with the tonics, and will relieve, provided those habits are given up and solid food taken. Tobacco, either chewed or smoked in excess, enfeebles by the frequent expectoration of saliva, and keeps the individual in a half-muzzy state, and eventually discolours the skin: the least injurious mode of using it is moderate smoking, as one or two cigars or pipes of tobacco: in this way it tranquillises the spirits, and is stated to preserve a regular state of the bowels.

Habitual constipation is a great obstacle to good digestion; it is therefore of importance that the bowels should be carefully regulated, and it is better, if possible, that this should be effected without the aid of physic, by soliciting their action daily, and taking a mixed diet; taking physic frequently begets an irritability of the bowels. Where they are weak, uneasy, and torpid, and where there is a general sense of coldness, and some aperient is absolutely required, a carminative combined with a tonic may be given, as tincture of rhubarb and tincture of senna, of each two drachms, and half a drachm of potash water or sal-volatile, in a wineglassful of fresh orange-peel or chamomile-tea, every day at noon, or an hour before dinner, gradually reducing the dose, or leaving it off by degrees. For further management, see Costiveness.

Besides the symptoms already mentioned, there are certain sympathetic affections accompanying indigestion, as a deranged state of the urinary secretion, bilious and sick headaches, irregularity of the pulse, with other symptoms resembling disease of the heart, difficulty of breathing, as in asthma, and many other ailments, varied by individual peculiarities, often to the great alarm of the patients and their friends. But such ailments disappear when the digestive functions are properly performed. In convalescence from dyspepsia it is of great importance that the patient should bear in mind that it is only by gradual and gentle impressions and persevering means that the organs of digestion are induced to resume their healthy actions.

Although much may be done by medicine suited to particular states, very much more may be done by attention to regimen and diet: it is from the too common neglect of these, that indigestion is so rarely and imperfectly cured; for this reason we shall briefly recapitulate the chief circumstances to be attended to. 1st, Air and exercise, the beneficial effects of which are scarcely sufficiently estimated; they are paramount to everything else: a combination of walking and riding on horseback is to be preferred, where it can be obtained, to either taken singly. Riding chiefly exercises the abdominal viscera; walking, the limbs and chest. 2nd, The preservation of a permeable state of skin by occasional bathing, and sponging the body every morning with cold water, followed by well rubbing with a coarse towel. 3rd, A due portion of sleep, and early rising. 4th, Proper clothing: the feet and surface of the body should be kept warm in cold weather, the feet by woollen socks; the wearing a flannel waistcoat next the skin at all times, varying the texture according to the season of the year, is worthy of more serious consideration for dyspeptics than it usually obtains. 5th, The diet should be frugal, and taken at stated intervals of three, four, or five hours; the dinner should consist of such kinds of animal food and vegetables as agree best with the individual, excluding such as are deemed unwholesome. The food should be well masticated, and eaten slowly, and never taken in such quantities as to cause a feeling of fulness or distension: having regard to these circumstances, it need not be restricted as to quality. No food should be taken between the regular meals, as eating too frequently is as bad as eating in excess: when the power of the stomach is expended, it is gradually restored—to favour this an interval of rest is essential. After the dinner meal no urgent exercise either of body or mind should be immediately undertaken. Abstinence should not be so protracted as to cause a feeling of exhaustion, as fasting too long weakens the digestive powers. Solid food should be avoided just before going to bed. Of the nature of drinks, sufficient has been said; a moderate quantity of tea and coffee is allowable. It is some consolation to sufferers from dyspepsia to reflect that it may be the means of preserving them from more formidable ailments—they will have learned to avoid excesses, and thus escape their ill consequences. Cheerful society, travelling, and change of scene, are excellent auxiliaries.

EAR-ACHE.

Pain in the ear, and abscess in the ear-passage.

Symptoms.—Severe pain in the internal part of the ear, confusion of sounds, temporary deafness, and more or less fever. Slight ear-ache is not uncommon in children during dentition; it is more severe in older children while cutting the permanent teeth, as in adults in cutting the wisdom teeth. Some persons are very subject to ear-ache on exposure to cold or draughts. There is not usually much disturbance of the system, but the pain is sometimes excruciating.

Treatment.—During the first dentition, lancing the swollen gum, and giving some aperient, will mostly afford relief. In elder children, a little laudanum may be dropped into the ear and an aperient given, as half a drachm of Gregory's powder (No. 31*a*), or a dose of the compound senna mixture, to be repeated until the bowels are well moved. Should these not prove beneficial, the parts may be fomented with decoction of chamomile flowers, and afterwards a warm poultice applied; or the heart of a roasted onion may be placed, while warm, within the external passage. When the pain continues, two or three leeches should be put behind the ear, and afterwards a blister; and the anodyne saline aperient No. 27 given. Where there is an abscess in the external passage, with much swelling and pain, hot fomentations and poultices should be applied, and the passage carefully syringed with warm water, and, after the abscess has discharged, with a solution of eight grains of sulphate of zinc in half a pint of water or rose water; the bowels, as in the former case, being attended to. Some persons are subject to these abscesses in consequence of some derangement of the general health: they should be treated accordingly. The external ear may be regularly bathed with cold salt and water to preserve it in a healthy state, and an aurist should be consulted.—See Deafness.

Dr. James Kennedy considers that ear-ache is generally caused by derangement of the digestive organs, and that it may be speedily and effectually relieved by an emetic, in combination with a purgative, as half a drachm of ipecacuanha, one grain of tartar emetic, and three grains of calomel, mixed and taken together in honey or treacle, and followed by a copious draught of warm water, which may be repeated twice or thrice if necessary.

EPILEPSY; FALLING SICKNESS.

This disease consists in a sudden deprivation of the senses, the patient falling down suddenly, and the whole body being affected with strong convulsive motions. It is impossible to give a perfect description of epilepsy,—so various are its forms, and so numerous its modifications.

An attack of epilepsy is sometimes preceded by a heavy pain in the head, dimness of sight, noise in the ears, palpitation of the heart, flatulency in the stomach and intestines, a perception of an offensive smell or bitter taste, weariness, and stupor, and in a few cases a cold vapour or *aura* appears to rise up to the head. More generally the patient utters a piercing cry and falls down suddenly, without previous notice; his eyes are distorted or inverted, so that only the whites of them can be seen; his fingers are closely clinched; his limbs, and particularly the trunk of the body on one side, are much agitated; he foams at the mouth, and thrusts out the tongue, which frequently is much bitten, as is also the under lip, from the muscles of the lower jaw being affected; and blood flows from the bitten parts and mixes with the foam. The breathing becomes gasping and arrested, the heart beats violently, the face and lips are turgid and livid, he loses all sense of feeling, and not unfrequently voids, involuntarily, both fæces and urine. After a continuance of the convulsions for some time, they gradually abate, and the patient is for a short time in a state of insensibility; on coming to himself, he feels very languid and exhausted, and does not retain the least recollection of what has passed during the fit.

The fit in this strongly marked form generally lasts from five to ten minutes, but sometimes it is of much shorter duration. At other times there will be a succession of fits with intervals of torpor, lasting for several hours.

There is another form of epilepsy which is very slight and transient; it is characterised by sudden giddiness and want of consciousness, and a short period of insensibility. There is a fixed gaze and look of confusion, an unsteady or tottering gait, and sometimes slight convulsive or involuntary movements of one or both hands, rolling of the eyes, and twitching of the muscles of the face. This state is of momentary duration, consciousness returns, and the patient resumes his previous occupation without perhaps being aware of the interruption; or, if aware of it, he endeavours to conceal it. Dr. Guy says such slight fits are often followed by a period of great confusion of intellect, or even of maniacal incoherence.

This form of attack is called epileptic vertigo, to distinguish it from epileptic fit. Sometimes a patient will suffer from many recurrences of epileptic vertigo, and afterwards be attacked with violent epileptic fits; at other times the mild and severe form will recur alternately. There are many degrees between these two extremes: occasionally the sufferer sinks or slides down quietly, pale and insensible, as if in a fainting fit, without noise or convulsions, and after recovering remains sick, languid, and confused for some hours.

The periods at which the fits return are very variable; the intervals are generally irregular, though often regular. The milder forms, in some cases, are very frequent.

The age at which epileptic fits come on is sometimes very early, as in infancy, or between the seventh and eighth year of age, during the second dentition, or at the age of puberty—more commonly before than after that time—and on some rare occasions, later in life. Their first occurrence is generally during the night, after the first sleep. Sometimes distinct warnings of the approach of the fit are given, as depression of spirits, or the reverse; others have slight vertigo or spectral illusions of distinct forms of persons and things. Warnings are of considerable advantage, as they enable the sufferers to place themselves in comparative security; as by dismounting from horseback, getting away from precipices, &c. In the epileptic aura, the patient feels as if a stream of cold water were ascending from some particular part to the stomach, or to the head, mostly without any assignable cause for its originating there; as from the foot or hand, or from an old cicatrix or scar: now and then an aura originates within the head. These symptoms are not always necessarily followed by an attack.

On some rare occasions, patients will die in the first fit—when it is usually from suffocation; but generally they recover their consciousness gradually. Some will be violently delirious, others idiotic for a time; and often they know nothing about the occurrence of the fit, except that they find the tongue bitten or clothes soiled or deranged from a fall. It is not usual for any permanent ill effect to follow a first fit, but after a repetition of fits the individual becomes more irascible than formerly, the memory is enfeebled, and the mental powers and intelligence decline. At length he too often sinks into a state of hopeless fatuity or imbecility, accompanied by some paralytic affection. Cases now and then occur in which epileptic persons preserve their faculties to a good old age.

Epilepsy arises from disease or disorder of the brain and spinal cord, the affection either originating directly in them or through them, in consequence of irritation in some portion of the body; as from congestion of blood in the vessels of the brain, from scrofulous tumours or tubercles, from a portion of bone projecting from the skull pressing on its substance, from diseased state of other parts, as the liver, kidneys, stone in the bladder, worms in the alimentary canal, wounds and contusions. The disease is distinguished into idiopathic and sympathetic; the first originating in the brain and spinal cord, the second in some other organ.

The tendency to epilepsy may be hereditary, as a result of scrofula, misshapen or malformed head, or hydrocephalus.

There are certain vices which predispose to it,—as habitual intoxication, debauchery of all kinds; and one, perhaps, more than others, which it is painful to allude to—viz. self-pollution. Also any strong mental emotion or bodily pain, or great disturbance of any of the principal functions of the body, repelling eruptions,—more particularly about the head,—and suppression of habitual discharges, without substituting some other artificial evacuations;—anything which enfeebles the body: as excessive discharges and loss of blood, imitation, or witnessing an individual in the epileptic paroxysm. Dr. Hardy relates that a strong healthy young man, who had charge of an older epileptic patient suffering from frequent and violent paroxysms, at the end of seven weeks became himself epileptic in a very high degree. An acquaintance of his, of equally robust frame, but some years older, who occasionally visited the parties, in a fortnight from his first visit was also seized with similar violent attacks. In this way the disease will affect children in a school, or patients in the wards of an hospital; for which reason young females, and children especially, should never be permitted to witness an epileptic fit. It is asserted that the premonitory cry is so terrifying that it has been known to affect the lower animals. Sometimes the cause is evident, at others quite inexplicable.

Epilepsy is very often feigned; and not unfrequently, from imitation in the first instance, the impostors eventually become actually epileptic. An ingenious plan for detecting an impostor without injuring a real sufferer, is to propose within his hearing to pour boiling water on his legs, and then to pour cold water upon them.

This disease is distinguished from hysteria by the total suspension of consciousness, the peculiar cry which mostly ushers in the fit, the deep sleep which succeeds it, and the suffusion of the countenance from interrupted breathing. In hysteria there are alternations of crying and laughter; there is sometimes screaming, but then it is repeated and continuous,—there is no heavy sleep after, or biting of the tongue or foaming of the mouth, and the respiration is rapid and sobbing. It is distinguished from apoplexy by the transient nature of the fit, the absence of stertorous breathing, and by the voluntary motions in epilepsy being increased unconsciously.

The probability as to cure is unfavourable when it is idiopathic, as arising from any organic disease or disorder of the brain, when hereditary, when it is of long standing and the fits frequent, and more so where the memory is enfeebled, and where it is associated with scrofula or complicated with any form of palsy; favourable, where it occurs before the age of puberty, and from any obvious exciting cause capable of removal,—as worms in the intestinal canal: in females, when occurring previous to menstruation, it will often cease on their becoming regular. Though few cases of confirmed epilepsy admit of cure under any treatment, the greater number may be relieved as far as regards the frequency and violence of the fits.

Treatment.—Much may be done by domestic management in the way of prevention. Where there is an hereditary tendency to the disease, the infant should have the benefit of a healthy wet-nurse in preference to being nursed by its mother, where she is epileptic; it should not be weaned prematurely, and when weaned care should be taken that it is fed on a suitable diet (see Children, pp. 207—212). As the child progresses, the bodily health should be upheld in some measure at the expense of mental acquirements. At the approach of puberty the habits and tendencies should be carefully watched; and while the constitution, development, and growth are going on, all exhausting exercises should be prohibited; and, indeed, at all times the predisposition to such a fearful malady should act as a check upon excess of all kinds.

During the fit, little can be done except to guard the sufferer from injuring himself. He should be placed in a large bed, his neckcloth and all confining articles of dress should be removed, and his face freely exposed to the air. A good mode of restraining him from violence is wrapping a large blanket round him; and to prevent the tongue from being bitten, a portion of a towel or handkerchief, or a piece of wood or indian-rubber, should be placed between the teeth, or the mouth may be filled with common salt. If the head be hot, a stream of cold water may be directed upon it; and where the feet are cold, they should be immersed in a warm or mustard foot-bath as soon as the violence of the paroxysm has subsided, and then the patient may remain tranquil. Afterwards, if there be strong evidence of fulness about the head, some blood may be taken away by leeches or cupping, but under common circumstances bleeding is not advisable. Endeavours must be made to prevent a recurrence of the attack, by the removal of all apparent sources of irritation or disease. Plethora is to be avoided without reducing the strength—vigour is to be imparted without producing fulness. General plethora is to be counteracted by active purgation and abstemious living; and where the head is affected, occasional leeching or cupping may be resorted to, and setons or issues may be inserted in the back of the neck or between the shoulders. If the individual be pale, weak, and irritable, a generous but not stimulating diet will be advisable, as also the cold shower-bath and tonic medicine, always attending to air and exercise, which will impart firmness and stability to the frame, and render the system less susceptible. Of tonics, bark, quinine, sulphate of zinc, valerianate of zinc, preparations of iron, and nitrate of silver, have been much lauded: the old steel wine is, perhaps, one of the best. A change is, however, desirable, and the following pills are recommended by Dr. Graves :—

> Take of Sulphate of Zinc, one grain; Extract of Gentian, two grains. Mix and make into a pill, to be taken three times a day. Increase this dose one grain every third or fourth day, until five grains of the Sulphate of Zinc are taken at a dose for an adult. —Or,
>
> Take of Valerianate of Zinc, half a grain; Extract of Liquorice, two grains; made into a pill to be taken three times a day, increasing the dose by half-grains until two or three grains of the zinc are taken three times a day.

With these, if the appetite be deficient, some of the bitter vegetable tonics (Nos. 122, 123) may be given, or moderate doses of the quinine mixture, or a larger dose substituted for the pills. After a time these may be alternated with the steel wine, or mixtures Nos. 128, 129, the bowels being carefully regulated. There are many other medicines, all of which have succeeded in certain cases, and are chiefly useful for their antispasmodic and sedative powers (see Materia Medica),—as valerian, castor, musk, cajeput oil, turpentine, belladonna, henbane, opium, Indian hemp; misletoe, given in two-drachm doses two or three times a day; and cardamine pratensis (cuckoo-flower, or ladies' smock), in one- or two-drachm doses twice a day. Turpentine, where there are worms, is likely to be beneficial, in doses of one drachm every six hours, or in larger doses—as from half an ounce to an ounce—at bed-time in milk: as the larger dose is apt to cause symptoms of intoxication the small dose is to be preferred. In many, turpentine produces strangury, of which the patient should be informed. In cases connected with disease of the brain turpentine would be likely to aggravate the malady, and therefore should not be administered. There are well-authenticated cases where this remedy has caused the expulsion of tape-worm, the existence of which was not suspected, and the epilepsy has been cured. In so distressing a complaint arising from such a variety of causes, many of these medicines may deserve a trial. It is observed by Esquirol, and appears to be true (however difficult it may be to account for the fact), that epileptics are apt to improve for a time under every new plan of treatment.

Where the paroxysm is preceded by distressing headache, with throbbing and distension of the vessels, prominent and bloodshot eye, and evidence of fulness, the leeching or cupping may ward it off. Where there is no plethora, but great irritation and increased excitement, opium given in a large dose—as two grains, or from twenty-five to fifty minims of laudanum—on the threatening of the fit, will generally prevent it, and invariably lessen its violence. The extract and tincture of Indian hemp under the same circumstances have been spoken of even in higher terms: they should be given at bed-time. When nausea and sickness of the stomach are the premonitory symptoms, an emetic of sulphate of zinc or sulphate of copper, as half a drachm of either, should be given in a tumbler of warm water. Where the fit is preceded by extreme languor, chilliness, and depression of spirits, a drachm of sulphuric ether, a drachm of sal-volatile, and half a drachm of tincture of henbane, may be taken together, in camphor mixture, every four hours, or the mixtures Nos. 44 or 102, and a mustard foot-bath used.

On other occasions irritation of the nostrils by smelling-salts or snuff, or dashing the face with cold water, and very active exercise, will succeed. Where the fit is ushered in by an *aura*, a very tight ligature placed above the part from which it proceeds—as on the little finger, thumb, or toe—will often arrest its progress.

"Whatever medicine the patient may take," Dr. Watson says, "the person who is subject to epilepsy should live by rule, and be temperate in all things." His diet should be simple and nutritious, but not stimulating: he should forego all strong liquors, and become a teetotaller. He should sleep on a mattress, with his head somewhat elevated on a firm pillow; rise early, and take regular exercise in the open air; keep his head cool and his feet warm; and avoid extremes of all kinds, large parties, crowded rooms, and every circumstance likely to excite strong emotion of the mind, and contests of all kinds. The student must give up his too close application to books, the man of business allow himself occasional relaxation from his pursuits; and all persons must abstain in their respective callings from such applications as would task and strain their powers, whether mental or bodily, and endeavour to engage their thoughts and to interest their mind in less engrossing objects of occupation.

ERYSIPELAS; ST. ANTHONY'S FIRE; ROSE.

Erysipelas is a diffused inflammation of the skin, with a tendency to spread, and sometimes extending to the cellular tissue. It is an idiopathic inflammation running a regular course, mostly lasting from ten to fourteen days, and often prevailing epidemically. It is communicable from one person to another under circumstances favourable to its propagation,—as during the existence of low fevers, or in the wards of an hospital. Some persons are predisposed to it at particular seasons, or whenever they have any ailment of the digestive organs, or are exposed to damp or cold. It appears in various parts of the body, more commonly in the face, neck, and legs. Unless the attack be slight, it is ushered in with symptoms of fever, shivering, headache, furred tongue, and derangement of the stomach of a day or two's duration, when the skin of some part becomes red or purplish, and a severe tingling or burning sensation, stiffness, and pain, are felt. There is a slight elevation of the surface, spreading more or less rapidly to the surrounding parts; on some occasions the face and hairy scalp become so swollen in a very few hours, that the features are not distinguishable, from puffiness of the eyelids, and the eyes are closed. As the redness extends, the part first affected becomes pale, the swelling gradually subsides, and desquamation ensues; and sometimes blisters, resembling those raised by a scald, form on the surface. The patient suffers more or less pain, and generally there is some wandering of the mind, especially at night. Redness and swelling of the throat is a frequent accompaniment of erysipelas of the face and scalp. In some cases the patient lies tranquil till the swelling subsides, and he is able to open his eyes. In bad cases delirium and coma come on, and the patient dies in a few days from effusion within the head. In others, from the swelling of the internal surface of the throat, the glottis becomes closed, and he is suddenly suffocated. In erysipelas there are two extremes, between which there are many shades and varieties: in some cases the inflammation is quite superficial, in others it dips down and affects the deep-seated tissues, and occasionally suppuration and sloughing ensue, more frequently of the eyelids. When the deep-seated parts are affected, and the disease has a highly inflammatory character, it has been named *phlegmonous* erysipelas: then the colour is very florid, the tingling and burning sensation very severe and distressing, and the surface firmer. It is more commonly met with in the young and sanguine. Where the parts are of a paler red, and pit on firm pressure being made, it is called œdematous erysipelas, and usually affects those of a feeble habit. Infantile erysipelas is a peculiar variety which occurs in infants at birth, commencing mostly at the navel, and extending rapidly to the extremities, which at the beginning are swollen, hard, and firm, and are prone soon to become gangrenous. When extensive, it commonly terminates fatally, and is more frequently met with in lying-in hospitals.

When erysipelas appears as a mere blush, unaccompanied by fever, it has been termed erythema.

Causes.—Erysipelas sometimes occurs idiopathically, without any obvious cause, from some constitutional peculiarity, and also in those persons who have had it before. Atmospherical vicissitudes, irregularity of living, insufficient nourishment, and want of cleanliness, predispose to it. It is more immediately excited, where any of the above circumstances exist, by violent mental emotions, intemperance, all debilitating causes, as profuse evacuations, wounds and contusions; and it frequently coexists with, or immediately follows some fevers, where matter (pus) is presumed to be taken into the circulation by the veins,—as in puerperal fevers, phlegmasia dolens, inflammation of the veins. It is readily propagated: hence too much caution cannot be taken to prevent its spreading, by the observance of cleanliness, the exposure to or free admission of fresh dry air, and taking sufficient nourishment; and persons suffering from wounds, or otherwise ailing, should not come in contact with those who are affected. These precautions are still more essential where childbirth is about to take place.

Treatment.—Under any circumstances erysipelas will run a certain course; our object must therefore be to conduct the sufferer safely through it. It is an opinion as old as Hippocrates, that the digestive organs are always in fault and as this opinion is still entertained by many of the best authorities, it will be advisable, if the tongue be foul, to give an emetic (see Nos. 107, 108), to be followed an hour after its operation by an aperient, as a full dose of the compound senna mixture (No. 20), or from half a drachm to a drachm of Gregory's powder (No. 31); or if the patient be of a full habit, three grains of calomel may be given at the same time with the senna mixture. As the disease is commonly met with in large towns, bleeding is inadmissible unless under competent medical authority. After the operation of the aperient, two tablespoonfuls of the saline mixture (No. 111) should be given every three or four hours, to which may be added a scruple of the carbonate of ammonia, or, if the stomach be irritable, the saline effervescing mixture (No. 28). Mild diluent drinks and beef-tea, with light nourishment, will be the appropriate regimen, and tepid or mustard foot-baths should be used at bed-time. Should the disease gradually decline, this treatment may be continued; but if the patient become feeble, we must give wine and bark, as two tablespoonfuls of the mixture No. 121 every four hours, or three grains of quinine, or a drachm of powdered bark, at the same intervals. Where the quinine or bark cannot be swallowed, or in cases of extreme depression, it may be administered in the form of enema, mixed with a small teacupful of thin starch: the bowels should be carefully regulated by the exhibition of mild aperients,—as Gregory's powder, or mixture No. 23, if required. Where there is much headache in a person of full habit, the application of leeches to the back of the head will be useful, or a blister between the shoulders, or a mustard poultice and the foot-bath, as before mentioned; and in this state also the saline mixture, with antimonial wine No. 112, will be proper. The affected part is relieved in some by dusting it with arrow-root, flour, powdered starch, magnesia, or hair-powder, or by applying linen moistened with the lotions Nos. 139, or 140, or 145. Others prefer warm applications, as fomenting with flannels wrung out of strong decoction of poppies quite hot, which to be beneficial should be carefully and assiduously employed. The best local application is that proposed by Mr. Higginbottom, of Nottingham,—that of lunar caustic, either in substance or in solution, in the proportion of eight scruples to an ounce of water: the part being first cleansed by soap and warm water, and carefully dried, the solution is to be cautiously applied to it, with a camel's hair brush, two, three, or four times, and left exposed to the air. In other cases the caustic itself may be used, and the progress of the disease arrested by drawing a line, one inch in breadth, round the diseased part on the healthy skin. The line must be made *accurate and entire throughout* by passing over the stick of caustic two or three times.

In PHLEGMONOUS ERYSIPELAS no time should be lost in obtaining medical aid, as the parts may require leeching, free incisions, fomentation, and poultices.

In INFANTILE ERYSIPELAS, provided the child has an efficient wet-nurse and will take the breast, it may have a good chance of recovery. It should have a teaspoonful of strong decoction of bark, with three or four drops of the compound tincture of bark, and two drops of sal-volatile every hour or two, and the parts should be frequently fomented with strong well-made decoction of poppies. The parent or nurse should be well supported, and the bowels of both attended to: an enema of beef-tea or mutton broth is most appropriate for the infant. Of the effects of the application of lunar caustic at this age there is no sufficient evidence.

Erythema; Inflammatory Blush.

A lesser kind of erysipelas, and not contagious. It consists of red patches of an irregular form and of short duration on some part of the skin. Sometimes the surfaces are smooth and shining, and bounded by a margin; at other times there are pimples or small tumours, appearing mostly on the face, breast, or arms. The *red gum* and *tooth rash* of children are of this variety. Another variety shows itself in red patches on the front of the legs, with hard painful lumps, the red colour turning bluish after eight or nine days, and looking as if the part had been bruised. It subsides usually in ten or twelve days, and appears peculiar to young women. It is to be treated by mild aperients, as Gregory's powder (No. 31), and afterwards bark and mineral acids (Nos. 124, 125); and locally by the lotions Nos. 139, 140.

Excoriation; Abrasion.

A wound or loss of the cuticle, or scarf skin, by friction.

This is a trifling but sometimes a painful accident where the hands are exposed to irritating fluids. The cuticle is quickly restored if the parts are kept quiet and clean. On the fingers the application of collodion, by means of a hair pencil, is one of the best remedies; but, as it causes much smarting, a piece of gold-beater's skin may be first put on, and the collodion applied by means of a hair pencil over it. To large surfaces the Goulard or zinc lotions (Nos. 142, 144) are most applicable; for the chafings in children, dusting with hair powder, starch, or arrow-root powder, is to be preferred.

Eye, Injuries and Disorders of.

The eye is subject to several acute and painful diseases, for which it is best always to resort to medical aid, as the delay of a day even may result in irreparable blindness. Mention here will only be made of accidents of common occurrence, and of the milder forms of disease to which it is liable.

Extraneous bodies getting into the eye, *i. e.* lodging on the membrane which lines the eyelids and covers the globe of the eye. Minute particles of dust, sand, gravel, small flies, or other bodies thus situated, cause an amount of pain scarcely credible from their size. If the substance be soft it rarely fixes itself on the ball, but generally inside one of the eyelids, mostly the upper one, so that it is not perceived, and its presence is only known by the copious flow of tears, which is a natural effort to get rid of it. If the substance is solid, and driven in with violence, it is lodged more or less deeply on the surface of the eye itself, and may be seen on exposing the ball; under common circumstances, the sufferer rubs his eye, which increases the flow of tears, and if he pass his finger over the eyelid from the outer towards the inner angle of the eye, the substance may be floated with the tears to the corner next the nose, whence it may be wiped away with the corner of a handkerchief. This failing, he may lay hold of the lashes of the upper lid and draw it over the under one, the lashes of which, by being thus interposed between the upper lid and the eyeball, serve as a delicate brush, and may bring the offending particle out, as the upper lid recovers its place: the eye should then be liberally bathed with water, and the under lid turned down, and, with the lower part of the ball, carefully examined. These efforts not succeeding, the upper lid should be examined by everting it in the following manner: another person lays hold of the upper lashes and pulls it forward and somewhat downward from the globe of the eye, and with the other hand places a bodkin or knitting needle along the upper and outer surface of the lid, pressing it back gently, at the same time lifting the lashes towards the eyebrow, thus turning the inside of the lid outwards: the substance is to be removed by a bodkin wrapped round with linen or lint, or by a piece of clean soft blotting-paper rolled up in the form of a cone. It often happens that the substance is so small as not to be visible: the inside of the lid and upper surface of the ball should therefore be carefully wiped, and the minute offending body will be frequently found adhering to the lint or blotting-paper. Occasionally, when the irritating substance is removed, the feeling of its presence still remains; this is from its having wounded the membrane, thus producing considerable uneasiness and superficial inflammation of the conjunctiva.

INFLAMMATION OF THE EYE is generally in the conjunctiva, and is characterised by redness, pain, which is aggravated by the admission of light or air, an increased flow of tears, swelling, particularly about the cornea, as also of the eyelids, and a sensation as if there was sand under them; the ball feels too large for the socket, the pain extends to all the neighbouring parts, as the forehead, &c., and the eyelids in the morning are glued together from the formation of matter. There is a good deal of constitutional disturbance, as rigors, succeeded by heat, with a hot and dry skin, pains in the back, or what is called sympathetic fever.

Causes.—Particles of sand, &c., getting into the eye; variation of temperature when accompanied by a sudden access of light; sitting in a hot room; exposure to a current of cold air, or easterly winds.

Treatment.—When in the mild form, it may be relieved by the administration of two or three smart purgatives of two or three grains of calomel, followed by a dose of the compound senna mixture, No. 20; bathing the eyes with warm water, or decoction of poppies; and having the apartment darkened, but the eyes not covered up. When the pain and redness cease, the eyes may be bathed with a solution of acetate of lead, in the proportion of one grain to the ounce of water; or at a later period a solution of sulphate of zinc in the same proportion: should the pain be severe and sense of burning great, half a dozen or more leeches should be applied to each temple, and followed by a blister to the back of the neck; and, after active purgation, the saline mixture, No. 112, with half or a quarter of a grain of tartar emetic in each dose, should be given every four hours, so as to keep up a degree of nausea. Sir A. Cooper says there is no medicine which after bleeding tends so effectually to control inflammation. The diet should be of the lightest kind, and consist of weak tea, toast without butter, barley water, &c. Should the inflammation not *immediately* yield, recourse should be had to a surgeon, as bleeding to the extent of fainting, and other more active measures, may be required.

Chronic ophthalmia.—The term chronic here has no reference to the duration of the disease (although it often follows the acute form), but means that state of inflammation or congestion of the vessels of the eye which from the commencement is characterised by debility. All the symptoms before described may exist, but in a less severe form.

The causes of the chronic form may be the same as those of the acute form, but the former is generally associated with dyspepsia; it is also very apt to arise from, or be kept up by, acrid fumes in particular trades; and often accompanies dentition, measles, and small-pox, gout, rheumatism, and inebriety. In the chronic form all warm applications are to be laid aside, as is also the evacuating plan. The eyes are to be bathed with the solution of acetate of lead, sulphate of zinc, or copper, gradually increased in strength, but not so much so as to cause smarting, and a drop of the wine of opium instilled into the inner corner of the eye twice a day by means of a hair pencil or blunted pen; the margin of the eyelids should be anointed night and morning with the diluted citrine ointment (No. 151). Neither light nor air should be excluded, but the eyes must not be used for any purpose requiring close application. A more generous diet (but still an unstimulating one) may be allowed, and the general health must be most scrupulously attended to.

Purulent ophthalmia.—Suppurative inflammation of the conjunctiva is the severe form of this disease; its prominent characteristics being the formation of a quantity of purulent fluid, which often accumulates largely between the lids, and gushes out when they are separated. It is exceedingly acute, very rapid in its progress, often very destructive in its ultimate effects, and hence requires the most active treatment.

Purulent ophthalmia occurs occasionally in children at birth, either caused by the exposure of the eyes to too strong light, particularly of the fire, or by the contact of acrid vaginal discharges during the birth of the child.

Treatment.—The eyes should be freely bathed with warm water twice or thrice in twenty-four hours, and in the intervals every hour or two, with a dilute solution of acetate of lead, one grain to the ounce of water; and it is better to use a fresh piece of cambric or fine linen every two or three times, as the matter previously washed off may otherwise be again applied. The child should be purged by giving it one grain of mercury with chalk, followed by a teaspoonful of castor oil, and it will be well to give every night for a few nights one grain of mercury with chalk, two of magnesia, and one grain of ginger made into a powder: should this act too much on the bowels, the grey powder by itself should be given; if not sufficiently, a dose of castor oil occasionally, or the nurse should take an aperient: on the second or third day the eyes may be bathed with a solution of alum or sulphate of zinc, in the proportion of one grain to the ounce of water, and a portion carefully injected twice a day under the lids with a pointed pewter syringe; subsequently, two or three drops of the solution of nitrate of silver may be instilled under the eyelid twice a day, and the margin of the eyelids carefully anointed with the dilute citrine ointment (No. 151), or if that irritate, with spermaceti ointment. The room should be kept darkened, but the eyes not covered up; the most scrupulous cleanliness should be observed by the nurse, the child rigidly confined to the breast milk, and the parent's diet carefully attended to.

STRUMOUS OPHTHALMIA is another variety of inflammation of the eye met with in children, and now and then in adults, of scrofulous habit. The most marked symptom is extreme intolerance of light. The child holds its head down, and scarcely opens its eyelids; if you are enabled to see the ball, there is not much redness compared with the suffering; there are always little spots or deposits of lymph or ulcers on the surface, and the eye, if the disease be not arrested, becomes slowly and gradually disorganised: as long, however, as the cornea continues bright, and retains its natural colour, there is every probability of the patient doing well. The system is languid and feeble, and the digestive organs are deranged.

As there is considerable local irritation, a mild depleting plan must be first adopted, sometimes by the application of a few leeches, but always by a blister to the nape of the neck or behind the ears. "You will be surprised to find, after the application of a blister, how soon the intolerance of light will vanish; even in children, their disposition will rapidly alter, and the inflammation be so slight that you can actually open their eyes without any trouble" (Cooper's Lectures). The eyes may be steamed with a solution of one drachm of opium to a pint of hot water, or bathed or fomented with the fluid. The irritation having subsided, warm applications must be discontinued, and the eyes bathed with a solution of alum—one, two, or three grains to the ounce of water—or solution of sulphate of zinc in the same proportion—neither being so strong as to irritate: the opium, or a solution of the nitrate of silver of two grains to the ounce of water, should be dropped between the lids, and the dilute citrine ointment (151) applied to the margin of the lids. The bowels should at first be freely purged, and then a grain of mercury with chalk (grey powder), with twice as much rhubarb or magnesia, given as an alterative powder every night, gradually at more distant intervals. As soon as the motions are healthy, tonics, as the preparations of steel and cod-liver oil, should be given. The diet should be mild and nutritious.

Pustules in the eye.—A small pimple will occasionally form on the ball of the eye, sometimes accompanied by inflammation, at other times without any. When the pustule breaks it leaves a little ulcer, which heals and a speck remains. If situated on the white part, it is not of much consequence, but when on the transparent part (or cornea) it interferes with the sight. The speck will often disappear after taking once or twice some active aperient medicine, the application of a small blister on the temple, and bathing the eye with chamomile tea, or decoction of poppies; "but should it continue, after a time, if there be no surrounding redness, the ulcer or speck should be touched with a solution of lunar caustic, in the proportion of two grains to an ounce of water, by means of a camel's hair pencil" (South).

A STY, or STIE, is a small boil which forms on the margin of the eyelid, among the roots of the eyelashes, in delicate and unhealthy children. It rarely becomes larger than a large barleycorn, and is at first red; after two or three days matter forms and the little abscess bursts, when a scab forms, which soon drops off: sometimes there are several sties together situated on both eyelids. The eyelids should be fomented with warm water or decoction of poppies, to accelerate the formation of matter; afterwards, when the scab forms, the margin of the lids should be smeared with dilute citrine ointment (No. 151) every night and morning; at the same time, some alterative aperient, as one or two grains of mercury with chalk, and three or four grains of powdered rhubarb, mixed, should be given twice or thrice a week. To prevent a recurrence, the eyes should be bathed with a weak solution of salt and water night and morning, and the general health attended to.

BLIGHT IN THE EYE.—Blows on the eye frequently give rise to effusion of blood beneath the conjunctive membrane, from the bursting of a small blood-vessel, so that the part usually white becomes red or almost black; the same effect now and then occurs from violent retching, as in sea-sickness or from sneezing. "Occasionally it happens that though on going to bed nothing uncommon is noticed on the eyeball, yet on the following morning the white of the eye has turned dark red—this is commonly known as a blight on the eye" (South). It is unaccompanied by pain or any inconvenience, except the unsightly blood-shot appearance. A smilar condition will take place on the upper eyelid without the infliction of any blow. It is distinguished from inflammation by the uniform redness, and by the absence of those symptoms which usually accompany the latter malady; bathing with tepid water mixed with a small portion of vinegar, and giving the eye rest, will accelerate recovery.

CATARACT is an opacity of the crystalline lens, or its capsule, which prevents the passage of the rays of light, and precludes vision The disorder may occur at any age, but is more common in elderly people, although not unfrequently congenital. It requires an operation for its removal, for which a surgeon should be consulted without delay.

FAINTING FITS; SYNCOPE; SWOONING.

A sudden loss of sensation and muscular power,—so that the sufferer, if unsupported, falls to the ground,—with considerable diminution or entire cessation of the pulsations of the heart and the respiratory movements, mostly preceded by a dimness of sight, singing or buzzing in the ears, paleness of the face and lips, and cold perspiration. Persons of delicate constitutions or weak nerves are liable to swooning or fainting fits; or those suffering from any organic disease, as of the heart or neighbouring blood-vessels.

Exciting causes.—Debility from long fasting, profuse evacuations, fatigue, impure atmosphere, heated rooms, sudden transitions from cold to heat, strong mental impressions, and indigestion.

Treatment.—As there is a diminution of the supply of blood to the brain, the patient should be placed in a recumbent posture, with the head on a level with the body, so that the feebly acting heart may be saved the exertion of propelling the blood upwards; the face should be freely exposed to the air, and sprinkled with cold water, and sal-volatile or vinegar applied to the nostrils; and when the patient is capable of swallowing, a little sal-volatile mixed with water may be given: if left tranquil, the patient soon recovers. Syncope commonly is not a serious affection, but the exciting causes must be attended to in order to prevent a recurrence. (See Hysteria, Epilepsy, Apoplexy.)

FEVER

Is one of the most frequent and complicated diseases to which the body is liable. In the most simple form of fever there is a combination of several symptoms. These are increased heat, frequency of pulse, loss of appetite, general debility, pain in the head, and a difficulty in performing some of the vital or animal functions. The other symptoms usually attendant on fevers are nausea, thirst, anxiety, delirium, weariness, wasting of the flesh, want of sleep, or the sleep being disturbed and not refreshing.

When the fever comes on gradually, the patient generally complains first of languor or listlessness, soreness of the flesh, heaviness of the head, loss of appetite, sickness, with clamminess of the mouth, succeeded after some time by excessive heat, violent thirst, restlessness, &c.

When the fever attacks suddenly, it always commences with a sensation of extreme cold, accompanied with debility and loss of appetite; frequently the cold is attended with shivering, oppression about the heart, sickness or vomiting, and acute pain in the head.

The usual division of fevers is into Intermittent, Remittent, Continued, and Eruptive. An intermittent fever consists of febrile paroxysms with perfect intermissions (see Ague).

In Continued fever there is a quick succession of paroxysms, following each other without any visible abatement of the preceding ones.

In Remittent fever the symptoms never entirely intermit, but undergo a marked diminution or increase at periods more or less regular.

Eruptive fever is that which occurs in measles, small-pox, scarlet fever, &c.

Continued fever may be simple or contagious.

SIMPLE CONTINUED FEVER is of short duration, and is characterised by slight shivering, sickness, loss of appetite, general indisposition, succeeded by heat of skin, thirst, and furred tongue: these symptoms commonly run their course in one or two days, and mostly terminate in perspiration or diarrhœa.

Causes.—Cold, extreme fatigue, excess in eating or drinking, bad food, and, in the case of persons who have previously had small-pox, measles, &c., an exposure to the contagion of those diseases, as such persons will probably be protected from the specific malady, but not from the simple disorder.

The Treatment consists in resting in bed, abstaining from solid animal food, taking freely of diluent drinks, as barley-water, thin gruel, &c.; administering some mild aperient, as No. 23, or Gregory's powder (No. 31*a*), followed by the saline mixtures Nos. 111, 111*a*, 112, and acting guardedly and living abstemiously for a few days.

EPIDEMIC CONTINUED FEVER.—Dr. Fordyce says, "Fever is a disease which affects the whole system; it affects the head, the trunk, and extremities; it affects the circulation, absorption, and the nervous system; it affects the body, and it affects the mind; it is therefore a disease of the whole system in the fullest sense of the term. It does not, however, affect the various parts of the system uniformly and equally, but, on the contrary, sometimes one part is more affected than another" (Graves's Clinical Lectures). Fevers are called brain, nervous, bilious, gastric, and catarrhal: these names, however, do not imply that there is simply disease of the brain, nerves, liver, bowels, or respiratory organs; but that in each of these fevers disease predominates in some particular part. Again, others are called inflammatory, low, putrid, typhoid, spotted, according to their more prevailing or prominent character. These various denominations are for the most part useless, as there is no genuine line of distinction between continued fevers that can be relied on; the most dissimilar run insensibly into each other, and are traceable often to the same source.

The forms of fever vary so much, that at the commencement the symptoms might be thought to belong to totally different maladies. These variations occur not only in individual cases, but in the whole epidemic or prevailing form. In some places or seasons, or situation of the patient, the inflammatory form predominates, marked by strong excitement of the circulation; in others the low form, characterised by extreme depression of the nervous system; more commonly the disease will commence with inflammatory fever or increased excitement, and terminate in one of depression. In the colder months cough is often an accompaniment; in the autumnal season, diarrhœa.

In some malignant epidemics the nervous system is overwhelmed at once by the virulence of the poison. The patient at the onset becomes confused and drowsy; his skin is cold, clammy, and discoloured; his pulse weak and indistinct; and death ensues within four and twenty hours. This sometimes occurs in small-pox and malignant scarlet fever.

In epidemic continued fever the patient may be pale and drooping for some days without the appearance of any distinct form of disease, or he may be attacked at once with violent shivering, dense headache, vertigo and oppression, and an inaptitude for exertion of mind or body, and stagger about as if intoxicated, from the changes going on in the blood making a strong impression on the nervous system. The skin becomes excessively hot, the pulse frequent, varying from 100 to 130 or 140; there is gurgling from pressure on the abdomen, the stools are of a yellow ochre or dark colour, and extremely offensive; there is also sometimes diarrhœa; the urine is high coloured, small in quantity, and of a disagreeable odour:—this may be considered the first stage. The pulse becomes quicker and feebler, the tongue brown or almost black, the teeth covered with a dark incrustation, an eruption perhaps appears on the skin, the headache diminishes, and the movements are irregular and weak; the patient lies on his back and sinks down in bed, he swallows with difficulty, not from inability to do so, but from being too listless to make the attempt, convulsive movements and involuntary starting ensue, followed by wandering delirium (at first at night only), insensibility to impressions, deafness (which, however, is a more favourable symptom than when the hearing is preternaturally acute), together with a sense of something floating before the eyes which the patient attempts to grasp or catch; and he picks at the bed-clothes. At length there are more evident marks of blunted sensation, he allows flies to crawl over his face undisturbed, takes no notice of bedsores which occur about the hips and nates, is careless as to the result of the disease, if questioned says he is quite well, passes stools and urine unconsciously, or the urine accumulates in the bladder, which should always be examined, and the urine drawn off if requisite. Eruptions of various kinds appear on the skin, mostly about the chest and belly, which are scarcely raised above the surface; or if the sweating has been very profuse, a very minute vesicular rash is thrown out—often the entire skin is dusky. In this the second period, marked by delirium and eruptions, if the patient does not about the tenth or twelfth day of the disease show signs of amendment, he sinks into a condition of more marked debility, lies helplessly on his back with his mouth open, and puts out his tongue tremblingly and with hesitation; his stools pass involuntarily, marked with blood, or there is hæmorrhage from the bowels, by which he is sometimes suddenly exhausted; bloody spots like flea-bites appear under the skin, or purple blotches resembling bruises. At this time, which may be called the third period, the symptoms vary considerably, accordingly as death or recovery is about to take place. In the latter case the more formidable symptoms gradually diminish, and on some occasions a copious perspiration or some critical discharge, or an apparent aggravation of the disease, precedes the amendment: the improvement is often so gradual as to be almost imperceptible. The patient begins to attend to questions, and the stupor slowly clears away, he becomes attentive to the requirements of the bowels and bladder, and takes an interest in what is passing around him, and his emaciated appearance is then more observable. When death is likely to ensue, the patient sinks into a comatose state, or dies from difficulty of breathing, or from the sudden exhaustion of all power. The foregoing symptoms are more frequently complicated with affections of the head, chest, bowels, and skin. The mean duration of simple continued fever is from three to ten days; of the epidemic or contagious continued fever, about twenty-one days; the shortest being twelve, the longest twenty-nine days from the commencement of the disease to the establishment of complete convalescence. The rate of mortality varies from 1 death out of 22, 25, or 30 attacked, to 1 in 4 or even 2½. Of 42 deaths, 1 occurred in the first period or week; 9 in the second, or between the eighth and fifteenth day; and 32 in the third period.

The predisposing causes are all circumstances which enfeeble the frame,—as bodily fatigue, want of cleanliness, deficient nourishment, excesses of all kinds. If to these, mental anxiety and exhaustion from intellectual labour be added, the fever early assumes a most dangerous form.

Exciting causes.—Contagion, or impurity of the atmosphere from collections of filth in crowded apartments. The disease originates in a peculiar animal poison received into the blood, and is communicable from one individual to another; it is not thought to be so before the ninth day of the fever, but it is so during convalescence. It does not follow that every person exposed to the contagion should take it, and it is uncommon for any one to have genuine contagious fever twice. Continued fever, like small-pox and measles, arises in all cases from a specific contagion, and, like them. affects the same individual only once.

The noxious qualities of the poison are diminished and at length destroyed by its dilution with common air, and its extension is in great measure prevented by counteracting or obviating the exciting causes. Where it occurs in any dense locality, the sick should be removed from their crowded homes, their impure residences well cleansed and ventilated; those not infected should have an improved diet, and the numbers collected together lessened. The disease rarely spreads where proper precautions are taken, and where means for treating it are at hand: these are, placing the sick in a large well-ventilated room, with the window or door open, and a fire in it, unless the weather be very hot; as the fire produces a current of air,—in which, however, the patient should not be placed; all bed-hangings and unnecessary articles of furniture, &c., should be dispensed with (a second bed is useful to remove the patient to during convalescence), the strictest cleanliness should be observed, by changing the bed and body linen, and immediately removing all discharges and impurities which might contaminate the air; all unnecessary intercourse should be avoided, both for the sake of the sick and the healthy, and the attendants should be of mature age, and during their attendance be well nourished, not be over-fatigued, and go occasionally into the open air. The solutions of chloride of lime or zinc may be employed, as, although there is no proof of their disinfecting agency, they destroy bad smells.

Treatment.—So formidable a disease as continued fever should not be confided to domestic treatment. There is no specific means of arresting its course; it must be treated on general principles, and the most urgent symptoms combated Individual cases and different epidemics vary much in their character; so that what is suitable in one case may not be so in another. Due regard must be paid to the character of the prevailing fever, if any such exist, and also to the peculiarity of the patient's constitution. If in the early stage the disease require active antiphlogistic treatment, it must be borne in mind that a period of depression will succeed, and that .depression will be increased by undue activity at the commencement. Moderation in the use of remedies, constant watchfulness and prompt attention to aggravating symptoms as they occur, are peculiarly necessary in all cases. At the onset it will be well to clear the stomach and bowels; if the tongue be furred and the head confused, the emetic No. 107 may be given, and succeeded by a dose of the compound senna mixture No. 20; or if the individual be of a full habit, by from three to five grains of calomel, with the senna draught, and after its operation a dose of the saline mixture No. 111 or 112, every four or six hours; if thirst prevail, mild diluent drinks in moderate quantities may be taken, as toast and water, iced water, barley water, slightly acidulated with lemon-juice: it is preferable that they be swallowed slowly, as gulping down large quantities of soda water and saline draughts, &c., in a state of effervescence, is apt to cause distension of the stomach and bowels, and painful flatulency. It is of great importance to have a competent nurse, for there are a thousand little offices which such a person only can perform well; as in giving medicine, nourishment, changing linen, &c. It is of the utmost consequence to economise the patient's strength, and the very act of lifting him up or altering his position tends to produce exhaustion. There are few patients who are not in a state analogous to insanity some time during fever, when they require moral management also, and friends and relatives are rarely capable of discharging these duties; too often, from their ill-judged anxiety or want of firmness, they interrupt the tranquillity and due course of management; they steal softly to the bedside, just as the patient is settling down to rest, to watch the effects of an opiate, if one has been given, or perhaps to inform him of it, and thus probably prevent its operation. If the skin be hot and dry, it should be sponged with cold or tepid water, the temperature of the water and frequency of the spongings to be determined by the feelings of the patient. The propriety of general bleeding need not be commented upon here: of late it has grown much into disuse; and it has been remarked that, since the occurrence of cholera, bleeding is not borne so well, nor does it act so beneficially, as it was formerly considered to do. The saline mixture may be taken, or small doses of tartar emetic—as two grains dissolved in a pint of barley water—of which two table-spoonfuls may be given every two or three hours. When the head is affected, the hair should be shaved off, and a few leeches may be applied to the temples or behind one ear, and the head kept cool by carefully sponging with cold water, iced water, or vinegar and water, or laying it on a bladder of powdered ice, tied loosely, so that it may adapt itself to the head: subsequently a blister may be put to the nape of the neck. If sleeplessness precede or accompany the head symptoms, an opiate, as from twenty-five to thirty drops of laudanum, or the same quantity of solution of morphia in a saline draught, should be given, or double the quantity may be administered in half a pint of gruel as a lavement. If diarrhœa supervene, it may be checked by the chalk mixture with Dover's powder (see Diarrhœa); and if there be much local tenderness at the pit of the stomach, or any part of the abdomen, four, five, or six leeches may be applied; or if the patient be too feeble to warrant the loss of blood, the abdomen may be covered with a large warm linseed-meal poultice. Cough, or difficulty of breathing, may be relieved by the temporary application of blisters to different parts of the chest for two, three, or four hours. "Blisters are followed by very different effects, and capable of serving very different purposes, according to their mode of application as stimulants, or as evacuants and derivatives" (Graves). In the present case it will be quite sufficient if they prove merely rubefacient, or at most vesicate so slightly as to give the blistered surface the appearance of a miliary eruption, by which the benefit of the stimulating effects is obtained without the debilitating consequences: wherever there are local pains, temporary blisters may be applied in this way with advantage. As to food, we must recollect that a person under the influence of fever, where the sensibilities are blunted and the functions deranged, and who is perhaps suffering from delirium and stupor, may not call for food although requiring it, and if it be not pressed upon him, symptoms like those arising in the healthy subject from starvation, as inflammation of the stomach and bowels or brain, may arise. After the third or fourth day of fever, therefore, some mild nourishment should be given, and continued through the whole course of the disease. But although starvation must be guarded against, the opposite extreme, that of over-loading the stomach, must be equally avoided. Food must be administered with care and judgment: for the first three or four days, whey or barley-water will be appropriate; after this, groat gruel (which is less likely to cause flatulency than oatmeal gruel) flavoured with sugar, and, if there be no tendency to diarrhœa, with a little lemon-juice also; in two or three days, panada made with a thin slice of toasted bread may be taken morning and evening, or in spoonfuls during the day; as the fever advances, mild animal jelly, or chicken or veal broth, or beef-tea, may be allowed, but the effects of the first few spoonfuls should be watched, and if they cause heaviness, sickness of stomach, flushing of the face, and general excitement, the gruel and panada must be again had recourse to: the more stimulating food may agree better in a few days, and it is the best kind of nutriment that can be given in the middle and latter stages of protracted fever. The risk of beginning the sustaining treatment too early is much less than that of delaying it too long. If animal broths do not suffice to uphold the patient, he must have wine, sometimes in considerable quantities, or brandy and other articles of nourishment. A useful stimulant drink is made by dissolving one drachm of chlorate of potash in a pint of water, which may be taken daily. The patient's relishing the wine and broths confirms the propriety of their administration. The great art of getting a patient through a bad attack of fever is, that he should be judiciously and constantly watched: the bladder should be regularly examined, as nurses are deceived by the patient being wet in consequence of the water dribbling away from the overflowing of a distended bladder: if he cannot pass urine, it must be drawn off. The under surface of the body should be kept scrupulously dry and clean, and dusted with hair powder or starch. If the projecting parts become red and disposed to ulcerate, they should be bathed with brandy and goulard-water (No. 142), or defended by simple lead plaster, or amadou plaster, and by pillows and air-cushions arranged so as to relieve the tender parts from pressure. The management during convalescence is of considerable importance, the object being to restore strength and guard against a relapse, for a relapse is often more perilous than the original malady. The patient must not get up too soon, or indulge in solid food too early. The stimulants should be gradually withdrawn, and the nourishing quality of the food increased in proportion. When the debility is very great, the stimulant must be cautiously continued, and assisted by the tonic mixtures Nos. 122 to 125. As soon as the tongue is quite clean and moist, and of its natural colour, and the skin cool, he may commence with boiled white fish, and proceed afterwards to chicken and mutton in moderate quantities; and subsequently change of air will accelerate his recovery.

REMITTENT FEVER; GASTRIC FEVER; BILIOUS FEVER.—A fever in which there are distinct exacerbations and remissions, but no complete interval or absence of fever, one paroxysm not entirely subsiding before the commencement of another. In tropical climates, and on the coasts of the Mediterranean this is the principal form of fever. "The ordinary bilious fever of the United States is a simple remittent" (Dunglison).

It is not usual in this country, but in marshy districts in spring and autumn it is sometimes met with in common with ague, of which it may be considered an aggravated type, being attributable to the same causes. It is mostly complicated with biliary derangement, and obstinately constipated bowels, or vomiting and diarrhœa.

Treatment.—The state of bowels must be attended to, and the disorder afterwards managed as ague or continued fever, as one or the other is best marked.

INFANTILE REMITTENT FEVER; LOW FEVER OF CHILDREN; BOWEL, STOMACH, WORM, OR MESENTERIC FEVER; MARASMUS. —A remittent fever, arising from local irritation, of which the bowels are the usual seat, and indigestion, the common cause.

"The diseases of children have great tendency to assume the remittent form, whatever may be their origin. This disease depends mostly on irritation of the intestinal mucous membrane" (Evanson).

Symptoms.—The child is generally ailing, without any marked disease, for some days; he looks ill, loses his colour, is languid and fretful, complains of pain in his head or belly, is drowsy, but rests badly, moans, and grinds his teeth; when awake, he is constantly picking his nose and lips, the appetite fails, the tongue is usually coated, and the breath foul. The bowels are always irregular, mostly confined, or alternately relaxed and costive, and the belly tumid and very hot. The stools are unnatural, extremely offensive, and varying in colour from a pale clay-colour to black; the urine is turbid, as if mixed with milk, and deposits a sediment.

The child at length becomes feverish, or the disease may, at its onset, commence with fever preceded by a shivering.

The fever remits at intervals; usually there is one well-marked paroxysm late in the day, characterised by flushed cheek, hot hands, hot and dry skin, followed by copious perspiration, generally confined to the head and chest. If the paroxysm occur in the evening, there is mostly watchfulness and restlessness; if it take place in the early part of the day, drowsiness and stupor. On some occasions there will be two or three paroxysms in the course of the twenty-four hours, which will then be less marked. Sometimes there are no distinct paroxysms, but the child looks pale and sickly, his flesh becomes flabby and loose, he has appetite for neither food nor drink, and if persuaded to eat will bring it up again in an undigested state; at other times he is thirsty, and craves for cold water. There are many minor attendant symptoms; as cough, redness of the eyes, irritation of the skin, sore nose and mouth, from picking; the surface frequently bleeding, or becoming covered with foul scabs. This is the character of the more common or acute form: on other occasions it assumes at once a chronic form; the belly is more tumid, hot, and tender (called drum-belly), the feet swollen and cold; all the other symptoms are aggravated, the child becomes rapidly emaciated, and the once plump, rosy countenance resembles that of a skinny old man. This wasting away is called marasmus. The symptoms vary at intervals: sometimes the belly falls in, or there will be a craving for food, in which he is indulged by the anxious and mistaken parent, encouraged by the hope of his amendment; and the child has a fit of indigestion or colic. At length he is extremely debilitated and worn out, and lies in a state of drowsy unconsciousness, and dies from exhaustion; the death being often preceded by dysentery and convulsions, and now and then by dropsy. The chronic form is frequently complicated with phthisical cough, enlargement of the glands of the neck and mesentery, a dusky dirty-looking skin, various eruptions, and intestinal worms. Remittent fever is thought to resemble hydrocephalus, from which it is distinguished by the absence of coma, squinting, and convulsions, burning heat of head, and enlargement of the veins of the scalp. One never-failing symptom in this fever is the constant propensity to pick the skin. The duration of the first or common form is from ten to fourteen or twenty-one days, the chronic form may last weeks or months; the termination in the first form is for the most part favourable, but in the latter the reverse, particularly when complicated with disorder of the mesenteric glands, or occurring in scrofulous children.

The Causes are—improper or deficient food, impure air, insufficient clothing, exposure to cold, and intestinal worms. Such fever may follow painful dentition, or any of the eruptive diseases, where due care is not taken.

Treatment.—The object is to remove the morbid accumulations from the bowels, to correct the deranged secretions, and to uphold the strength. For the first, an efficient dose of calomel, as two or three grains, should be given, followed by eight or ten grains of the compound jalap or compound scammony powder; afterwards, to allay the febrile symptoms, the saline mixture No. 112 or 113. If the motions be pale, or of a clay colour, one or two grains of the grey powder (mercury with chalk) should be given every night, and where there is much heat of skin, the grey powder may be combined with a third or half of a grain of ipecacuanha powder and the aperient powder before mentioned; or ten or fifteen grains of the aperient No. 31*a* may be given every second or third morning, so as to cause free action of the bowels; or, should they be obstinately costive, a dose of castor oil every morning, and occasionally an aperient enema, No. 152, will impart a fresh impetus to the bowels.

As the power of the digestive organs seems to be suspended during this fever, the smallest quantity of labour should be imposed on them, and the diet should consist of the farinaceous decoctions, as barley- or grit-gruel, and arrow-root tapioca or sago jellies; milk and water and tea may be allowed. As the appearance of the motions improves, the nutritive property of the food may be increased; chicken, veal, or mutton broth may be taken for dinner, and a moderate portion of bread and butter with milk and water for breakfast and supper; and subsequently, light farinaceous puddings may be alternated with broth for dinner. Great attention to an appropriate diet is of the utmost importance, as inattention to this will cause a recurrence of all the bad symptoms. The child's belly should be rubbed twice a day with a little salad oil,—or, if he is costive, with the croton oil liniment, No. 136*a*, or, if there is pain, with the opiate liniment No. 132. If the feet be cold, and the child restless and indisposed to sleep, immersing the feet and legs for five or ten minutes in a warm bath at 98°, or a mustard foot bath, will have a most soothing effect; occasionally a general warm bath will be useful; if the child be still sleepless, and the bowels not confined, one grain of the Dover's powder may be taken at bed-time with the grey powder; should diarrhœa prevail, the compound chalk mixture may be had recourse to (see Diarrhœa). If there be worms, they should be treated as such; or if the gums be swollen they must be lanced. When the motions lose their offensive odour, and become of a more natural colour and consistence, the grey powder should be omitted, and, if requisite, some of the light bitter tonics (Nos. 123 and 124) and an occasional aperient given. Fresh air, moderate exercise, abdominal frictions, and a light nutritious diet, carefully regulated, are the best restoratives.

In the chronic form, or marasmus, the same mode of treatment must be pursued, and the regulations as to diet, &c. adhered to; but here it often happens that asses' milk is the only nourishment that can be borne, and it may be requisite to add to it some brandy, as from a few drops to a spoonful or more during the day; or a portion of wine or whey may be given. The greatest attention is required to allay irritation, by opiate frictions and nourishing enemas, and the belly should be supported by a flannel or calico roller. The occasional use of the tepid bath, carefully regulating the bowels by mild aperients, if requisite, is also advisable. The steel wine and other preparations of steel may be alternated with the mineral acids Nos. 126, 127; and carriage exercise should be taken, and the sea-side resorted to, as soon as they can be borne.

Fistula.

A long and sinuous ulcer with a narrow opening, which sometimes leads to a large cavity, and has no disposition to heal (Hooper's Dictionary).

Fistula in ano is the term commonly applied to a sinuous ulcer by the side of the rectum. The causes of this disease are various, as the pressure of hardened fæces from a costive state of body; or the reverse of this, as long-continued diarrhœa, producing irritation of the mucous membrane, which extends to the cellular tissue. It is often the result of some distant complaint, as disease of the liver or derangement of the alimentary canal, causing an accumulation or congestion of blood in the vessels near the anus. Persons who lead a sedentary life, take little exercise, and feed highly, are particularly subject to it. In the treatment of fistula, before the operation for its cure is performed, the general health should be remedied. The operation consists in opening the sinus with a bistoury throughout its whole length into the rectum. It is sometimes cured by a ligature of thread being passed through the sinus and brought out by the rectum (Cooper's Lectures).

FISTULA LACHRYMALIS is an obstruction of the lachrymal passage, preventing the natural flow of the tears and mucus from the eyes to the nose. This also requires a surgical operation.

FLATULENCY.

A morbid collection of air in the stomach and bowels. In health a certain quantity of gas is secreted by the vessels of the digestive tube, which is conducive to the performance of its proper functions; but sometimes more gas may be secreted than is necessary for the above purpose. A more common cause is food, particularly of a vegetable kind, not being digested and undergoing fermentation, in consequence of which a large quantity of air is evolved, producing more or less distension, which is called Tympanitis. For the treatment, see Dyspepsia.

FLOODING.

A discharge of blood from the womb. (See Menstruation and Abortion.)

FLUOR ALBUS; WHITES; LEUCORRHŒA.

An increased discharge of a white (mostly) mucous secretion from the internal surface of the vagina in females.

The discharge is for the most part irregular, and varies much, under different circumstances, both in colour and consistence, being at times white, green, yellow, or brown. It is generally at first white and pellucid, at other times opaque and thick, and now and then it comes away in lumps; it occasionally becomes very acrid, causing an abrasion of the parts, and severe smarting on making water; sometimes, and more particularly during pregnancy, producing a discharge from the urethra of the husband from sexual intercourse. Besides the local irritation, there is usually some constitutional disturbance, as costive bowels, pain of the loins and neighbouring parts, lassitude, and various nervous and hysterical affections.

Causes.—Over-exertion of the uterine system; irritation of the rectum from loaded bowels, diarrhœa, piles, or worms; also of the bladder; or it may arise from spinal irritation, debility, chlorosis, luxurious living, or warm rooms. When the disease is of long continuance, or the discharge very considerable, all the symptoms are aggravated, and accompanied by general debility. Menstruation is mostly irregular or too abundant, but sometimes altogether suspended.

Fluor albus is distinguished from gonorrhœa by the history of the case. In gonorrhœa there is generally more local irritation, with swelling of the external parts and the glands in the groin: also the discharge is constant, more opaque, like matter, and in larger quantities. In fluor albus the discharge is less regular, there is little comparative local irritation, and it is very rarely preceded or accompanied by any inflammation of the pudenda.

Treatment.—When the disorder is accompanied by heat, and is of recent origin, and the patient is of full habit, it will be advisable to take away some blood from the lower part of the back, by cupping, or the application of six, eight, or ten leeches. She should take saline aperients, as No. 23 or 38, observe a spare diet, practise local ablutions three or four times a day with warm or cold decoction of poppies, sit in the hip-bath, inject goulard-water (142), in each pint of which a scruple of opium may be dissolved, keep in the recumbent posture as much as possible, and avoid wearing napkins, as they heat the parts, and therefore tend to keep up the discharge. In cases of long standing it will be of no avail to use local remedies without attending to the general health: the bowels should be carefully regulated, in those of full habit by the saline purgatives taken daily; in others, by the pills No. 42, 42*a*, or occasionally No. 40, aided, if necessary, by a domestic lavement; and she must daily use the hip-bath of warm or cold water, in which a small quantity of salt may be dissolved, or, if there be much local relaxation, a pound of alum. The vagina should be injected with a solution of three drachms of alum and a drachm of zinc in a quart of water; and if the patient dislike it cold, it may be warmed by immersing a cupful of it in a basin of hot water. About three or four ounces should be thrown up the passage each time while she is lying in the recumbent posture, with the hips rather elevated; and she should remain in that posture for ten minutes or more, with the parts covered by a napkin or large sponge, in order that the fluid may be retained. If there be much itching of the parts, two drachms of carbonate of soda may be dissolved in a quart of bran tea or strong decoction of poppies, for an injection. After a time a drachm of the extract of catechu may be added to each pint of the alum and zinc injection, or they may be dissolved in decoction of oak-bark in lieu of water. When the menstruation is profuse, from fifteen to twenty drops of the dilute sulphuric acid should be taken twice or thrice daily in water, or some of the light bitter infusions, or the mixtures 124, 125, 126, or 127. When there is debility, with suppressed or scanty menstruation, the preparation of iron, as mixture 128, 129, or pills 131, or the compound steel pills, should be tried, or a pill of three grains of Canada balsam and half a grain of quinine taken four times a day. Mustard poultices should be occasionally applied to the lower part of the back, or the croton oil liniment, 136*a*, 136, rubbed well in every night: in some cases the arrest of a copious local discharge may cause headache or pain in the back; in such, dry cupping, or three or four leeches or small blisters, will be useful.

Women who are subject to fluor albus should avoid all the remote causes of the disease, and should neither indulge in large quantities of hot tea or slops, nor take too freely of wine, or other stimulating drinks, nor live too luxuriously; they should lie on a mattress in preference to a feather bed, avoid too much indulgence in sexual intercourse, rise early, and take daily exercise in the open air: they should forego napkins, but clothe the body warmly in proportion to the season. The use of the shower bath and sea-bathing will be beneficial.

GANGRENE.

The loss of vitality of a part. (See Mortification.)

GONORRHŒA.

A morbid discharge from the urethra, in consequence of impure connection.

Symptoms.—A short time after the communication of the infection, generally two or three days, but varying from twenty-four hours to a fortnight, the patient feels a tingling or uneasy sensation about the orifice of the urethra. The margin of the opening swells and becomes red, and then very quickly the discharge shows itself. The urethra begins to be affected with heat, and pain in discharging the urine: this state is called scalding of the water. The pain increases, till it becomes, in many cases, excessively severe: there is an appearance of threads mixed with the urine, which arise from the adhesive inflammation in the lacunæ of the urethra. The next effect is a considerable diminution in the stream, the swollen state of the urethra contracting the size of the canal. The urine is often discharged in two, three, or more streams, in consequence of the contracted and irregular state of the urethra. At first the discharge is mucous, but after a little time it assumes a purulent appearance; it becomes yellow, and if the inflammation be very considerable, green, and is often intermixed with blood, so as to give it a sanious appearance. The inflammation is of the erysipelatous kind, but there is no ulceration. If ulceration were produced, the membrane of the urethra would soon give way. It is merely a secretion from the mouths of the vessels. When the inflammation runs high, it extends down to the bulb of the urethra.

The time the discharge will continue is quite indefinite. It is said that gonorrhœa will wear itself out, "but I have known it," says Sir A. Cooper, "continue for months, and to be infectious during all that time, notwithstanding all the means that may be employed. In no case, however, ought you to rely upon the efforts of nature for its cure; for, in general, you may very much expedite it by judicious treatment."

Gonorrhœa does not confine itself, in its external effects, to the beginning of the urethra, but often produces an erysipelatous inflammation of the glands and surrounding parts, occasioning an effusion into the prepuce, and phymosis. The absorbents on the under part of the penis often become enlarged and hard, and produce little abscesses which go on to suppuration. The glands of the groin, in a first gonorrhœa, seldom fail to become enlarged and painful. In gonorrhœa, several glands are affected at the same time; whereas in syphilis a single gland only is enlarged on each side. Abscesses very rarely follow enlargement of the glands of the groin from gonorrhœa; they may almost always be prevented. "The swelling undoubtedly arises in consequence of the gonorrhœal inflammation running along the course of the absorbent vessels" (Sir A. Cooper). The effusion in the urethra often proceeds further than the original seat of the inflammation. Irritation and inflammation also take place in the deep-seated parts, producing that painful state termed chordee; in which the penis feels as if it were bound down, so as to prevent a complete extension. The next effect is the production of stricture, which is generally situated near the bulb of the urethra, and arises from the diminished diameter of the canal, in consequence of the thickening of the part from inflammation; there is great irritation and spasmodic contractions of the perineum and all the neighbouring parts.

Inflammation passes back down the spermatic chord, producing a swelling of the testicle (called *hernia humoralis*) and also to the bladder, causing so much irritation that the patient presses on the perineum when he makes water.

It rarely happens that an old man gets the disease without bitter reason to repent his folly. The prostate gland and bladder become affected from the extension of the inflammation; he suffers excruciating pain, and the bladder becomes highly irritable, causing a constant inclination to pass urine.

The cause of gonorrhœa is inflammation of the lacunæ of the urethra,—*i. e.* the mouths of the excretory ducts of the glands, which secrete the mucus that bedews the urinary passage when in a healthy state. It is produced by the direct application of the poison to the lips of the urethra. The discharge is influenced by the state of the constitution. Its appearance in the first instance may be protracted from that cause: again, if an individual having a severe gonorrhœa, have a fever, the discharge in the meantime will be suspended for seventeen or twenty days, but as soon as the fever leaves him it will reappear.

Treatment.—The cure of the disease is not so readily effected as persons are disposed to imagine: it will very often baffle those of the longest experience and greatest skill. It will be more difficult in proportion as the constitution is disposed to scrofula. In the first attack there is usually more inflammation than in subsequent ones. The patient should at the commencement be well purged by the compound senna mixture (No. 20); after this the bowels should be kept open by the pills Nos. 40, 41. He should take diluent fluids, of which he can hardly drink too much,—such as barley-water, tea, capillaire and water; or half an ounce of gum arabic may be dissolved in a quart of water, or two drachms of carbonate of soda or potash in the same quantity, and drunk during the day. Soda water may be taken, unless it increases the desire to pass water too frequently, in which case it should be laid aside. The penis should be immersed in water for some time at intervals, particularly while making water, if it scalds; or it may be surrounded with a piece of soft or old linen, moistened with Goulard lotion (No. 142), and if the scalding and chordee be very severe, from three to five grains of the extract of conium may be taken in camphor mixture at bed-time. When the inflammation has in great measure subsided, a table-spoonful of the following mixture may be taken night and morning:—

Take of Balsam of Copaiba and Mucilage of Gum Arabic, of each one ounce; Camphor Mixture, six ounces. Mix (Cooper.)

The urethra may be now injected with the lotion (142): after a week, one grain of sulphate of zinc may be added to each ounce, gradually increasing the quantity of zinc, or altering it for the sulphate of copper. It is better to vary the injection, but it should not be too irritating: if, on the other hand, it excite no sensation at all, it may be gradually increased in strength. It would be well for the patient to keep in bed till the inflammation subside; and during the whole time to avoid walking exercise as much as possible.

In subsequent attacks, after being well purged, the patient may take from twenty to thirty drops of the balsam of copaiba three times a day, or the mixture before mentioned, or the following electuary:—

> Take of Powder of Cubebs, one ounce and a half; Confection of Senna, two ounces; Syrup, sufficient to form an electuary, of which take a teaspoonful three or four times a day; also take freely of diluent drinks.

If this does not succeed in the course of ten or twelve days, two drachms of powdered cubebs may be added to the mixture of balsam copaiba, which is the most beneficial medicine for the cure of gleet, or protracted gonorrhœa.

As to injections, Dr. Graves says, "A gonorrhœa treated by injection from the beginning can generally, in persons of sound constitution, be cured in a few days. When a gonorrhœa has continued for several weeks, it often so alters the vitality and probably the structure of the several tissues, that a cure is uncertain, and frequently the treatment becomes perplexing and tedious: when gleet supervenes, remedies, even the most judiciously selected, frequently fail altogether: these facts prove the necessity of curing the disease in every instance as soon as possible."

Injections are not effective unless they come into contact with the whole of the inflamed surface: therefore the following directions should be attended to:—

The syringe (pewter or glass) must work easily with the pressure of one finger; its point should be carefully introduced at least half an inch within the lips of the urethra, which should be gently pressed on the syringe by the forefinger and thumb of the left hand, so as to prevent the reflux of the fluid through the orifice: the patient feels the fluid in the urethra, which it distends as far down as the membranous portion, if a sufficient quantity be injected. Some persons have an idle fear of the evil consequences of the injection arriving at the bladder; an ordinary syringe does not contain more than a drachm and a half, which is about the quantity required for one injection. When the fluid has been injected, the point of the syringe is to be withdrawn and the lips of the urethra kept closed with the finger and thumb, for at least two minutes; when the pressure is removed the fluid will be thrown out with considerable force in consequence of the elasticity of the canal. Before injecting, the urethra ought to be cleared by voiding urine. An injection ought never to be so strong as to cause anything like severe pain, and it is safer to commence with one so weak as to produce merely a sense of titillation or very inconsiderable smarting. It is often very difficult to hit off the precise strength required, and therefore, if it be too irritating, it should be diluted with water, and then it may be used five or six times a day. The irritability of the urethra diminishes very rapidly when an injection of proper strength is applied, so that the solution may be daily rendered stronger. Astringent injections are suited to every case at the commencement, and will very often cut short the disease; but when the disease has attained its acme, and the inflammation is at its height, the latter must first be diminished by purgatives, diluent drinks, cold Goulard lotion, the immersion of the penis at intervals in warm water, the observance of perfect rest, and a vegetable diet. An injection need seldom contain more than three grains of sulphate of zinc to an ounce of water (beginning with half a grain or a grain); a very useful addition is ten grains of Lapis calaminaris, and two drachms of mucilage of gum arabic, as the mucilage veils the irritating quality of the metallic salt, and renders the injection more likely to be detained in contact with the mucous membrane. After some impression has been made on the disease, the injection should be omitted at intervals, so as to observe its effects and ensure its not being used longer than may be required. Where strictures and previous diseases of the urethra, bladder, or prostate gland exist, the simple treatment is not applicable, nor to cases which have been badly treated, or of long standing, nor to those of a weak or scrofulous constitution. Strictures often occur in men who have never had a gonorrhœa; and swelled testicle and sympathetic buboes are frequently met with in cases where injections have not been used at all.

Gout

Is an inflammation of the fibrous and ligamentous parts of the joints.

The exact nature of gout is disputed, but there is no doubt that it, as well as rheumatism, is a disease of the blood. The first attack usually comes on unexpectedly after midnight. The sufferer having gone to bed in his usual health, is perhaps disturbed by some feverish dream, and is at length awakened by pain in the foot, accompanied by shivering, which gradually decreases as the pain increases, and is succeeded by heat. The pain becomes most severe and excruciating, and fixes itself in the ball of the great toe. The part feels as if it was being crushed, burnt, and torn to pieces, and is so exquisitely tender that the patient cannot bear to have it touched, even by the bed-clothes, and he himself becomes so sensitive that a person walking across the room distresses him. This state of things lasts for twenty-four hours, when the part begins to swell, appears red, and is covered with moisture. Towards morning he drops asleep, and generally falls into a gentle perspiration, and awakes somewhat relieved. The same symptoms recur in a mitigated degree for some days and nights, and then subside entirely. As the swelling abates, the redness fades, the skin of the inflamed part peels off, with much troublesome itching. It mostly happens that after a longer or shorter interval, sometimes of months, sometimes of years, a fit of the gout is followed by a second attack; after which it most commonly recurs at the same season of the year, once every three or four years, and at length, at shorter intervals, extending to both feet at the same time or in succession, then to the hands, and eventually to all the joints in the body. As the fits are more frequent, so are they more protracted, till some gouty subjects are scarcely ever free from the disease except for a short time during the summer months. The subsequent attacks are attended with less pain, but with more constitutional disturbance. After the earlier attacks the joints recover their strength and flexibility, but later, they become weak and stiff, and chalky concretions or deposits take place around or within them. "The material of these curious concretions is deposited at first in a half-fluid state, and resembles soft mortar; but the more watery ingredients being afterwards absorbed, it becomes dry and hard. It is related in the medical communication of a gouty individual, that he was accustomed when playing at cards to chalk or score the game upon the table with his gouty knuckles." (Watson's Lectures.)

The coming on of a fit of the gout after the first attack, is usually preceded by derangement of the digestive and urinary organs; as want of appetite, nausea, heartburn, acid eructations, and flatulence. The urine is high coloured and turbid, and deposits a red brick-dust-looking sediment, and the stools are unnatural and offensive; the spirits are extremely depressed, and the temper irritable; and there are coldness and numbness of limbs, with cramps and creeping feelings. Gravel and gout are usually associated; they often alternate with each other in their attacks in the same person, and variously attack different members of the same family,—the gout generally the males, the gravel the females. When the gouty disposition does not show itself in the joints, it often appears in a wandering manner; at other times it affects the internal organs in an aggravated degree: "thus transient local inflammations depending on gouty depositions often appear as bumps or tumours in various parts of the body, and run their course in a few hours, with fugitive shooting pains, which last only a few minutes or even seconds; these seem to be the result of momentary congestions; constant grinding of the teeth also is another symptom." (Graves's Clinical Medicine.) When the stomach is the seat of attack, there is great pain, nausea, vomiting, acid eructations, and flatulence, accompanied by extreme depression of spirits, cramps of the organ itself, and of the limbs; at times diarrhœa prevails, but more frequently obstinate constipation.

When the chest is affected, there is palpitation of the heart, and great distress, with difficulty of breathing: when the head, there is giddiness, pain, with threatenings of apoplexy, &c.; when the spine, severe neuralgic and nephritic affections, and subsequently palsy.

When gout attacks a joint in the ordinary way, but, without lasting the usual time or reaching its usual intensity, disappears abruptly and suddenly, and is followed by severe and alarming disorder in some internal part, it is called retrocedent gout. "It occasionally in this way attacks the urethra, simulating gonorrhœa; at other times the eye, the testicle, and now and then, to a dangerous extent, the throat." (Watson's Lectures.)

Causes.—Hereditary predisposition stands among the most prominent, and is more marked in this than any other disease. Sir Charles Scudamore says, in 522 gouty persons, 332 could trace their disease to father, mother, grandfather, grandmother, uncle or aunt. Those most liable to gout are people of luxurious habits, who indulge largely in animal food and generous wines, and take little bodily exercise; persons who work hard, perspire much, and drink large quantities of porter, as coal-heavers, and brewers' labourers; and the sedentary and studious, who become subject to indigestion and constipated bowels. Certain bodily conditions predispose to gout, as corpulence, or having a capacious head. Anxiety of mind or extreme mental occupation, excessive fatigue, sensual indulgences, suppression of customary discharges (as of the piles, to which gouty persons are liable), also greatly predispose to it; and under all the above circumstances a very slight injury will bring it on.

Gout is more common in males than females. It does not usually occur before the age of puberty, and most frequently between the 30th and 40th year. In some, the inherited gouty disposition is so strong, that the disease shows itself at an earlier age, and cannot be prevented by the most careful living.

Gout is distinguished from rheumatism by the early history of the patient, by the pain in the former attacking the smaller joints, more particularly that of the great toe, in preference to the larger; by its usually attacking one joint only at a time, while rheumatism often attacks many at once; by the previous or accompanying indigestion; and by the absence of the sour perspirations which occur in rheumatism.

Prevention.—Buchan says, excess and idleness are the true sources from which it originally sprang, and all who would avoid it must be active and temperate. Every one having a predisposition should adopt a strictly abstemious diet, or even become a teatotaller. Malt liquor should never be taken, and wine very moderately; a little plain spirits and water is less likely to do harm. Meat should be taken once a day only: bread, fresh vegetables, oatmeal porridge and milk for breakfast, and rice in moderation, form the most suitable articles of diet; but strong coffee is to be avoided.

A gouty subject should observe early hours; keep the skin permeable by sponging, or the use of the shower bath, and well rubbing afterwards; and take regular daily exercise, but not violent or in excess: immoderate exercise, taken by fits, and strong mental exertion, rather tend to invite an attack. The disease is never met with in agricultural labourers.

Dr. Watson says, "Let the son of a rich and gouty nobleman change places with the son of a farm-servant, and earn his temperate meal by the early sweat of his brow, and the chance of his having a fit of the gout will be very small." Following the general analogy of hereditary disorders, gout may be expected sometimes to leap over a generation, just as family likenesses do; while yet the disposition may descend to the children of those who in their own persons have never suffered from the disease.

Treatment.—From observing that after an attack of gout the patient was in better health than before, many mistaken ideas arose, and much injudicious treatment ensued; thus those subject to it have encouraged it by indulgence, in preference to self-denial; forgetting that although the outward appearance of it on the extremities might be beneficial, from its being an effort of the constitution to rid itself of peccant matter, it would be far preferable that such should not be required, as it must be evident that no constitution can bear up against repeated painful shocks without becoming permanently enfeebled and eventually destroyed. From the inflammatory nature of the disorder, active antiphlogistic remedies must be tried, not regarding the special malady, but the state of the constitution. Bleeding, formerly in repute, is at present not considered essential, and should only be adopted under medical advice. The view will be carried out by the administration of purgative and saline medicines, and the observance of a spare diet and perfect rest. From three to five grains of calomel should be given, followed by a dose of the compound senna mixture, to be repeated every four hours till the bowels are freely acted on, and afterwards a saline draught, Nos. 111, 112, every four hours. Where the motions continue dark and offensive, and the nights restless, two or three grains of calomel, with five or ten grains of Dover's powder, may be given at bedtime, and the following:—

Take of Bicarbonate of Potash, four scruples; Citric Acid, one drachm; Carbonate of Magnesia, one drachm; Syrup of Ginger, two drachms; Water and Peppermint Water, of each three ounces. Mix. A fourth part to be taken every four hours during the day.

If it be desirable to give the saline in a state of effervescence, the citric acid may be omitted, and a table-spoonful of lemon-juice given with each dose.

A draught of the compound senna mixture with decoction of aloes (No. 21) should be given at intervals, so as to ensure the effective action of the bowels once at least in twenty-four hours. The diet should consist of light broths, beef-tea, and farinaceous puddings; the drinks, of tea, toast-water, barley-water, or soda-water; and a scruple of bicarbonate of soda or potash may be mixed with a tumbler of any of the above, or in plain water, and taken three or four times a day, and a teaspoonful of brandy be added for the more feeble. As the constitutional disturbance subsides, so, generally, will the local inflammation. It is better that it should be thus reduced by general treatment than by local applications, as it shows that radical relief is obtained,—an assurance which cannot be complete when topical applications are alone trusted to. In addition to the constitutional treatment, in irritable habits, where there is great local sensibility, the swollen foot may be bathed with an evaporating lotion of two ounces of spirits of wine in half a pint of water, rendered tepid by placing the cup containing it in a basin of hot water; or lint may be moistened with it and applied over the swelling, or the foot may be surrounded with cotton wool covered with a piece of oil-silk.

The fit being relieved, the sufferer should determine to avoid another attack by paying attention to the signs of its approach, and immediately and strenuously adopting preventive measures. No half-measures will be of avail, although it may be necessary to modify the treatment according to the constitution of the individual.

In recurring fits of gout, colchicum is one of the best remedies; but its employment should always, if possible, be under medical direction.

"Colchicum judiciously employed may fairly be considered a specific for the gouty paroxysm; as much as sulphur is for itch, and bark for ague. It certainly cures in an almost magical manner the pain of gout. How it operates is not so clear. It is apt to produce nausea, faintness, and diarrhœa; but its curative influence is not conditional upon the occurrence of these symptoms. Sometimes the rapid disappearance of the gouty inflammation is its only perceptible effect. The patient may be in helpless agony, with a tumefied red joint, to-day, and walking about quite well to-morrow. It is plainly an anodyne. It also sensibly modifies the condition of the urine, rendering it less acid, and even alkaline, and increasing its quantity. These effects are induced, I presume, by changes in the blood wrought by this substance, which thus and there proves somehow an antidote for the poison of gout" (Watson's Lectures).

The stomach and bowels should be cleared, and the healthy secretions of the digestive organs restored. If it be early in the day, three or five grains of calomel may be given, followed by a full dose of the compound senna mixture (No. 21), with decoction of aloes, to which may be added half a drachm of the wine or tincture of colchicum: if it be night, three or four grains of calomel with a grain of opium may be given in a pill at bed-time, and washed down with a saline draught containing forty or fifty minims of tincture of wine of colchicum, and in the morning the warm aperient draught before mentioned, and at intervals during the day the following mixture:—

> Take Solution of Acetate of Ammonia, twelve drachms; Wine of Colchicum, half a drachm to a drachm; Bicarbonate of Potash, one scruple; Syrup, two drachms; Peppermint Water and Water, of each two ounces. Mix. A fourth part every six hours. To the dose at night six additional minims of the Wine of Colchicum may be added.

After the attack has subsided the medicine should be continued for some days in gradually decreasing quantities, in order to eradicate any hidden mischief that may remain; and a course of alterative aperients in combination with mercury will act beneficially on the digestive organs (see pill Nos. 15*a* and 16): violent purgatives enfeeble the patient, and are likely to increase the susceptibility to gout. In some cases it may be advisable at the same time to give some light bitter infusions with ammonia; as the mixture of calumba, or cascarilla (Nos. 122 and 123). Temperance both in eating and drinking should be rigidly attended to.

Afterwards, upon the occurrence of any symptoms of the approach of gout, such as deranged digestion, high-coloured urine, with brick-dust-looking sediment, torpid or deranged bowels, headache, &c., recourse to the same measures —that is, alterative aperients, with or without colchicum

(Nos. 15, 15*a*, and 16),—may avert the threatened fit: temperance, early hours, and the rules before laid down for its prevention being observed.

As gout occurs under various conditions of health and frame, from that of the highest degree of vigour to that of helpless debility, although the *principles* of treatment to be observed in both must be the same, yet the latter cannot bear the same rigorous discipline; the peculiar condition of the individual must be attended to, and support given if required, and the evacuating treatment not be carried too far in any case.

When the local disorder seems disposed to remain, after the constitutional derangement has been corrected, recourse may be had to a more active local treatment. If there is still heat in the part, from sixteen to twelve leeches may be applied;—if the swelling be indolent, a blister, and after this moderate friction with the stimulating liniment, with colchicum or aconite (Nos. 132 and 133), will be useful, and subsequently rubbing with the hand and hair-powder, in order to prevent the mobility of the joint being destroyed, and eventual decrepitude ensuing. As soon as all traces of inflammation have disappeared, early return to gentle exercise is of the first importance. It is the best means of restoring free circulation in the weakened parts, obviating morbid deposits, removing swellings, and thus preventing the rigidity and contractions so apt to take place.

Unless the cavity of the joint is diseased (which it very rarely is in the early attacks of gout), prolonged rest is highly injurious. Sensibility to slight pain and fears of an attack should not prevent the renewal of moderate exercise, essential as it is to re-establishing the health. Dr. Watson says that the young and the hearty cannot take too much; but that the old and dilapidated, by one act of over-exertion, may incur the penalty of an attack. Exercise to be beneficial should be taken regularly, and not be interrupted by periods of indolence or inaction: it should be active muscular exercise, and none is so good as walking, with which riding may be agreeably and advantageously conjoined.

Gout is a disease of indolence as well as repletion, and the blood is vitiated by retained excrementitious matter, as well as by redundancy of nutriment; and this explains why abstinence alone, unassisted by exercise, can never be expected to eradicate gout.

Temperance in diet is the safeguard against plethora, but exercise is as essential for promoting the healthy appropriation of the nourishment taken, and is the chief stimulus to the several excretory processes by which the effete matter is eliminated and expelled. The excretions which chiefly concern us here are the bowels, the skin, and the kidneys. Increased discharge from the bowels seems the principal means by which nature endeavours to get rid of impurities, and its promotion by suitable purgatives is evidently indicated, care being taken at the same time to support the strength by light and nutritive diet. It is not sufficient that the stools should be regular in amount and frequency; if they are dark, pitchy, pale, or peculiarly offensive, evacuant or alterative medicine is required, although there may be no other symptom of disorder. The pill No. 15*a* may be taken every or every other night. and a dose of the compound decoction of aloes the following morning. Those of sallow complexion and phlegmatic habit should take the mixture No. 30, those of plethoric habit and florid complexion, No. 23, till the motions appear more healthy. The skin should be kept clear and perspirable, to promote which exercise is most essential, and in addition, active daily friction with a coarse or flannel towel, or flesh-brush, occasional warm or tepid bathing, and keeping the surface of the body warm by wearing flannel, will be serviceable. The urine, where there is a disposition to gout, forms a red deposit consisting of matter which is not natural to it. The most effectual way of removing this is by diminishing its supplies and increasing the activity of the other secretions, for it is their inactivity which causes the kidneys extra labour. Light diet, a free skin, and open bowels, will clear the urine with little aid from chemical correctives. "Both in stone and gout more may be done in correcting the morbid state of the urine by re-establishing a healthy balance in the constituents of the blood, avoiding all excess of diet and stimulants, keeping up an active state both of the skin and intestinal excretions, than can ever be effected by neutralising remedies." Acids and alkalies are both useful assistants, and may be beneficially administered according to the different states of the urine, but should not supersede the constitutional treatment.

The above should be accompanied by the observance of early and regular hours, and the avoidance of severe mental applications and extremes of all kinds. The plan laid down is quite compatible with every rational enjoyment of life. There are many instances of men of good sense and capable of self-control, who, being warned by one visitation of the gout, have thenceforward resolutely abstained from rich living, and from wine and strong drinks of all kinds, and who have been rewarded for their prudence and self-denial by either complete immunity from any return of the disease, or by its subsequent assaults becoming few and feeble. Sir William Temple remarks, "I have known so great cures, and so many, done by obstinate resolutions of drinking no wine at all, that I put more weight on the point of temperance than any other." A very strong and well-authenticated case in point may be mentioned. A rich merchant, who lived in corresponding affluence, was a great and frequent sufferer from gout: by adverse fortune he was bereft of all his property, and was obliged to live in a state of comparative poverty: he entirely lost his gout. It should be borne in mind that one unusual indulgence in any great excess of food or drink may suffice to bring back a visit from the old enemy. Gouty persons are impatient of constraint, hence they have sought by reputed specifics to ward off the disease. Of the fatal consequences of this there are numerous examples in the case of the Portland powder, and more recently of the Eau medicinale: there are other more recent so-called specifics recommended by professional men of high authority (Nos. 114, 115, 116), which are equally fallible with the above; but as there is no mystery in their composition, they are a step in the right direction, although bad substitutes for a course of temperance and exercise.

When diseased actions have existed for some time, and still more where structural changes have begun, the organs and parts concerned are not capable of being suddenly restored to a state of health. As the morbid change has been gradual, so must the corrective progress be; whether instituted by nature or promoted by art.

In proportion as the general health is broken, and the power of bearing active treatment diminished, must gouty people abate in their expectations of cure, and be satisfied to relieve their sufferings by adhering as far as they can to the rules laid down: by attending to the slightest warning of the enemy's approach, and adopting suitable measures, much may be done even in extreme cases.

Gout may become *retrocedent*, and, suddenly subsiding from the extremities, attack the stomach. Such is likely to happen when the local inflammation is repelled without the constitution being relieved; and it not unfrequently proves fatal. The attack is marked by intense pain at the pit of the stomach, with sickness and vomiting, and extreme prostration of strength. Enquiry should be made whether indigestible food has been taken; and if so, an emetic of twenty grains of sulphate of zinc or copper should be administered. If proportionate relief be not obtained the following draught should be given:—

Take of Rhubarb powder, one scruple; of Laudanum, from forty to sixty minims; Tincture of Rhubarb, Sal-volatile, and Sulphuric Ether, of each one drachm; Peppermint *or* Cinnamon Water, one ounce and a half. Mix for a draught.

When the laudanum is not retained by the stomach, an opiate enema should be administered, made with one drachm of laudanum in a wine-glassful of gin (or any spirits that may be at hand), and a pint of gruel. The pit of the stomach should be fomented with flannel wrung out of decoction of camomile as hot as can be borne, and afterwards a mustard poultice, or a piece of flannel moistened with turpentine, applied, and endeavours made to direct the gout to the extremities by immersing the legs and feet in a mustard bath, or enveloping the feet in hot mustard poultices. As soon as the paroxysm has subsided it will be well to clear the stomach and bowels by a dose of calomel, followed by the compound senna draught, with compound decoction of aloes (No. 21). If the attack has the appearance of inflammation, which under these circumstances it is not always easy to distinguish, and if it be accompanied by great tenderness and fever, it must be managed by the application of leeches to the pit of the stomach, as inflammation under other circumstances, without any reference to gout, except by the application of mustard baths and poultices to the feet.

Cases characterised by extreme debility, where the gouty paroxysm has been slight, or next to none, have been named *Atonic gout*, and are mostly accompanied with great constitutional derangement, and disorder of the digestive organs. This variety is best treated by light nutritious food, carefully regulating the bowels, and the remedies appropriate for dyspepsia,—such as light tonics and stimulants. Where there is considerable weakness of the stomach, chalybeate preparations are most eligible, and these are best exhibited in the form of the natural mineral waters.

Dr. Barlow says, "It is in such cases that the internal use of the Bath mineral waters is so eminently serviceable, although they are valuable in most gouty cases, especially where the stomach requires some substitute for the wine and stimulants relinquished. In such cases, the grateful stimulus of the Bath waters gives tone to the stomach, improves the appetite, and renovates the strength; thus accomplishing an unequivocal good,—not, as has been falsely imagined, by the mere establishment of gout in the extremities, but by the reduction of gout to its simpler and most manageable state, through the amendment effected in the general health."

Formerly, Bath was the common resort of gouty patients in all stages and degrees of the disease. It is now discovered that in full habits and in inflammatory states of the constitution the waters are not only not admissible, but are very likely to have a prejudicial effect.

Sydenham remarks on the cure of gout,—"This is primarily and chiefly to be attended to, namely, that all stomachic and digestive remedies, whether they consist of a course of medicines, regimen, or exercise, are not to be entered upon in a heedless manner, but to be persisted in daily and with great exactness. For since the cause in this and most other chronic distempers is become habitual, and in a manner changed into a second nature, it cannot reasonably be imagined that the cure can be accomplished by some slight and momentary change made in the blood and juices by any kind of medicine or regimen; but the whole constitution is to be altered, and the body to be in a manner formed anew."

GRAVEL AND STONE.

The apparatus for the secretion and excretion of urine is very complicated: for a short description of it the reader is referred to Part I. Chap. I. §§ 19 and 23.

Sometimes one or more of the substances contained in the urine is deposited in a solid form in the kidneys or ureters, at other times in the bladder. These deposits may consist of greater or smaller particles, constituting sand or gravel: if any one of these remain stationary for some time, fresh matter accumulates around it, and it eventually becomes too large to be expelled with the urine through the passages, thus forming a stone in the kidney, ureter, or bladder. Whether it be in form of gravel or stone the nature of the disease is essentially the same.

Symptoms of a fit of gravel.—Pain in the loins more or less severe, usually on one side, descending on the same side in the course of the ureter, with numbness of the thigh and leg: often, in the male, the testicles are drawn up; there is sickness and vomiting, frequent desire to make water, which is often passed with difficulty, is mostly high-coloured and turbid, containing a sandy powder or gravel which is commonly red, but sometimes white, at others a mixture of the two, or they alternate with each other, and sometimes bloody; the digestive organs are deranged, and there is sense of weight at the pit of the stomach, acid eructations, constipated bowels, restlessness, and dry skin. When a stone or particle of gravel is too large to pass the ureter, all the foregoing symptoms are aggravated, and there is a frequent desire for the bowels to act whenever urine is passed. If the stone remain jammed in the ureter it gives rise to large accumulations of urine, leading to disease and distension of the kidney, and often proves fatal. During a fit of gravel, when the pain is suddenly relieved, it is generally in consequence of the stone having got into the bladder; and now and then it may have escaped altogether and passed through the urethra. When the stone is in the bladder there will be frequent inclination to make water, which comes away in drops, or with frequent stoppages and renewals of the stream, from the stone blocking up the passage: there will be pain both before and after it has passed, referred to the neck of the bladder, and itching at the end of the urethra. A similar train of symptoms occasionally occurs in persons of irregular and intemperate lives, where there is no stone or gravel apparent, but extremely turbid unhealthy urine.

Causes.—High living, sedentary habits, indulgence in bed, lying on the back, constitutional and hereditary predisposition, or drinking water impregnated with earthy matters. Also, if the urine be retained too long in the bladder, some of its fluid constituents may be reabsorbed, and the solid parts have a tendency to concrete, and thus form gravel or stone. This is only one of the many ill effects of too long a retention of urine from false delicacy.

Treatment.—Where the pain is violent, taking blood from the loins by cupping or leeches is advisable, and the bowels should be emptied by oily purgatives and warm laxative enemas, which act at the same time as an internal fomentation; afterwards a full dose of opium or morphia should be given, or an opium suppository passed up the rectum, consisting of five grains or more of compound soap pill and opium, or of one, two, or three grains of opium. This treatment may be followed by giving every four hours a saline draught, (No. 111 or 112,) with ten or fifteen minims of tincture of colchicum; and diluent and demulcent drinks should be freely taken, and a spare diet observed till the symptoms are relieved.

When it is probable that the stone has got from the kidney through the ureter into the bladder, it is of considerable importance to accelerate its expulsion, otherwise it will increase in size; and provided the urethra is in a healthy and natural state, this may be effected. "For this purpose the patient should be instructed to take freely of diluent drinks, such as barley-water or linseed tea, in which may be mixed a small quantity of the sweet spirits of nitre, and he should have a full dose of opium at bed-time. By these means the pain and irritation produced by the stone will be soothed, and the bladder will gradually fill. He should then make water, first placing himself in such a position that the outlet of the bladder may be at the lowest part, by standing up and leaning forwards; or it may be well to make water while kneeling in a warm bath. If these expedients be not successful the urethra may be cautiously distended, and habituated to the contact of a solid body by the daily introduction of a full-sized bougie: sometimes the stone will follow the bougie as it is withdrawn, through the urethra" (Watson). The operation of passing the bougie should always be performed by a surgeon, to whose care under these circumstances the case should be confided.

State of the urine.—The subsequent treatment must depend on the state of the urine, which should be examined. In healthy urine there is an excess of acid, which holds the earthy salts in solution: if the acid be in excess, or the earthy parts be diminished, there is a tendency to form a deposit, consisting of red sand or gravel (lithic or uric acid): this will be often observable in the urine of persons otherwise healthy, after the middle period of life, who live freely, and are disposed to biliary derangement, or who are of gouty or indolent habit; and also in children who are not carefully fed, but allowed to eat much trash or unripe fruit. On the other hand, if the acid be in smaller proportion, the earthy parts will no longer be held in a state of solution; there will then be a sediment of white sand or gravel, constituting the phosphatic or alkaline deposit, and indicative of want of vigour.

Treatment for Red Gravel.—Where the urine is in diminished quantity, and on cooling throws down red sand or gravel, if unattended to it may lead to the formation of stone in the bladder. As medicine, the alkaline carbonates should be taken,—as ten grains of the bicarbonate of potash, twice or thrice a day, in any aromatic water, or with an equal quantity of magnesia; and where the bowels are not confined, half a tumblerful of lime water, three times a day, or a saline draught, which will have the same effect as alkalies: the most appropriate time for taking alkalies is some time after meals and late in the day. Vigorous and regular exercise should be observed, to the extent of causing perspiration. The bowels should be regulated by a mild aperient pill; and occasionally a dose of calomel or blue pill, followed by a compound senna draught, will be beneficial. The deposition of red sand or gravel is usually connected with some derangement of the digestive organs, which must be attended to in cases of gouty or rheumatic tendency. Pill No. 10, with an occasional senna draught, No. 20, or one with compound decoction of aloes, No. 21. Much depends on the diet, which should be frugal, and consist of any one kind of meat or fish for dinner, with a due portion of succulent vegetables, avoiding those having any acescency—as salad, rhubarb, sorel, or oranges and apples—and also much sugar, which is apt to produce acidity of the stomach. If anything more than water be required for drink, one or two glasses at most of good sherry wine daily, or weak gin and water, potash or soda water, may be taken freely; the patient should avoid late dinners and more particularly suppers, and not go to bed on a full stomach. A free perspirable state of the skin should be promoted by exercise, if possible, otherwise by hot air baths or sulphur baths; and warm clothing should be worn. It will be well to vary the alkalies; but none of them should be persevered in too long, or taken in too large doses, or the acidity of the urine will be destroyed, and cause a deposition of the white sand or gravel, consisting of phosphates, and of an alkaline nature.

White Gravel.—Where the deposit of white sand or gravel is the result of taking alkalies too abundantly, it is easily remedied by abstaining from them; but where it is continuous, or was formed from the commencement, it arises from a deficiency of acid, and is not unfrequently associated with some disease of the organs, or chronic inflammation of the mucous membrane of the urinary passages. The urine in these cases is more commonly pale, like whey, and more abundant than usual, and after standing is covered by a film, in which, if carefully skimmed off and dried, crystals may be observed; it speedily becomes extremely offensive, and has an ammoniacal smell, and turns red litmus paper blue. This state of urine occurs in persons whose health is broken down, either from anxiety of mind, bodily fatigue, excessive sensual indulgence, or deficient nourishment, and such persons are for the most part feeble, dyspeptic, hysterical, nervous, &c. Injuries of the back affecting the spinal chord are often followed by the secretion of alkaline urine (Brodie), and it continues even after the patient has recovered from all his urgent symptoms. The same thing occurs where there is disease of the spinal chord independent of mechanical injury.

In females who are highly hysterical the urine is frequently alkaline, and deposits large quantities of white sand, sometimes red sand also, and occasionally the two kinds alternate with each other, which are thrown down in considerable quantities. There are cases in which the white sand or gravel is passed off by persons in apparently good health, with the exception of a very costive state of bowels. Now and then these deposits are accompanied by a secretion of tenacious ropy mucus containing phosphate of lime, having the appearance of white streaks in the mucus.

Treatment for White Gravel.—It is for the most part easy to render acid urine neutral; but to alter the state of alkaline urine is very difficult, as we might expect from the different states of health of the individuals most subject to either disease.

Where the deposit is of white sand, everything which tends to enfeeble the powers, such as bleeding and purgatives, must be avoided, as must also all alkaline remedies. The mineral acids in these cases are extremely beneficial, and may be given in water, or combined with tonics, as bark and quinine (Nos. 121, 124, 125). Opium has more effect than any other medicine in rendering alkaline urine acid, by composing the nervous state of the system. Half a grain of opium may be given three times a-day, where it does not interfere with digestion; and in these cases it usually does not disagree. A nutritious diet should be taken, with wine —of which the acid ones are to be preferred—or beer, and also the ripe fruits, as oranges, grapes, &c. Mental and bodily relaxation, tranquillity of mind, and gentle exercise, are the great remedies to be enjoined.

Where the white deposit is accompanied with a discharge of ropy mucus, the decoction of the pareira brava (No. 68), has an excellent effect (see Mucous Discharge from Bladder).

Green Sickness. Chlorosis.

This singular malady chiefly affects young unmarried women, sometimes children or married women, and occasionally delicate young men.

Symptoms.—Languor, listlessness, fatigue on the least exertion, palpitation of the heart, pains in the back, loins, and hips, flatulence and acidity in the stomach and bowels, mostly costiveness, a depraved appetite for chalk, rice, and even cinders, with other symptoms of dyspepsia, offensive breath, a white and pasty tongue, which is sometimes swollen and marked with indentations of the teeth; occasionally violent head-ache, pain of the left side, and many hysterical symptoms. As the disease progresses, the face becomes pale and of a peculiar greenish hue, the eyes are encircled with a dusky areola, the eyelids are puffy in the morning, the feet and ankles in the evening, and there is great general debility. The menstrual secretion is commonly pale and scanty, and at length ceases altogether; the inside of the cheeks and lips appear bloodless, as also the fingers, and the nails become brittle and split at the ends. If the disease be inveterate, various organic affections of the viscera ensue, which endanger the well-doing of the patient.

Causes.—Delicate frame, sedentary habits, and peculiar states of the constitution. Chlorosis frequently prevails among young persons of the same family, and, where the females suffer, a slight degree of the same or of a similar affection is often observable in the males, marked by a pallor of the lips, and an œdematous condition of the tongue.

In some manufacturing districts, chlorosis, and other maladies closely allied to it, may be said to prevail, from the habits of the people; as among the lace mannfacturers of Nottingham, where the younger people are engaged many hours of the day bending over the tambour or lace-frame.

Treatment.—As the disease depends on weakness of the system, either from deficiency of food, or from its non-assimilation producing a depraved condition of the blood, with obstinately costive bowels as a cause or consequence, the remedies must be directed towards the digestive organs, with a view of increasing the strength and improving the condition of the blood. The most appropriate medicines are purgatives combined with steel. It will be first advisable to clear the bowels of their indigestible contents with the compound senna mixture (No. 20), and to assist its operation, if requisite, by a domestic lavement; afterwards a pill may be taken every day at dinner, containing two grains of the compound aloes or colocynth pill, with two of the sulphate of iron, and the tonic mixtures (No. 118, 119); or five grains of the sulphate of iron, and ten grains of the extract of gentian or camomile, made into three pills, of which two may be taken twice a-day, and five grains of the compound aloes or rhubarb pill every night, or an occasional purgative of Mixture No. 21. The diet should be mild and nutritious, and not taken at too protracted intervals; with the dinner meal a very moderate quantity of brandy or wine, mixed with water, should be allowed; exercise short of fatigue should be taken in the open air,—riding on horseback is to be preferred; the clothing should be warm, and the surface of the body well rubbed with coarse dry towels, and a tepid bath occasionally used; change of air is beneficial, for which the chalybeate spas of Tonbridge Wells or Cheltenham may be resorted to, varied with sea-air and bathing if agreeable to the patient.

The violent and distressing headaches peculiar to this disease, and the intensity of suffering, sometimes even bordering on mania, consequent on them, call for particular attention. The impoverished state of the blood, and the diminished powers of the system, precluding general bleeding or violent and reiterated purging, they are to be combated by the hair being cut close, by cold applications to the head, as ether or water, the lotion No. 139, or ice in a bladder: mustard foot-baths must be tried (or a mustard hip-bath in case of suppressed menstruation), dry cupping and mustard poultices to the back of the neck and spine, and the administration of antispasmodics (Nos. 43, 44, 46, 47), in addition to the aperients, steel, and lavements, and the regimen before detailed. (See Headaches in young women.)

It is of essential importance that the state of mind and affections of the patient should be seriously taken into consideration, in order to resist this malady effectually.

GUM-BOILS.

Small abscesses on the gums, preceded by inflammation. They sometimes form without any apparent cause; at other times in consequence of a decayed tooth.

Treatment.—The suppuration may be hastened by holding bread soaked in hot water to the part, and as soon as matter is formed lancing will afford great relief. The gums will be rendered more healthy by washing the mouth two or three times a day with salt and water in the proportion of a tea-spoonful of salt to half a pint of water, and regulating the bowels by some mild aperient, as the powder No. 31. Where gum-boils arise from a decayed tooth, its extraction may be necessary.

HÆMATEMESIS; VOMITING OF BLOOD.

A discharge of blood from the stomach, mostly clotted, of a dark colour, and mixed with food; preceded by a sense of weight and oppression at the pit of the stomach. Sometimes the blood is thrown up in very large quantities, and extreme prostration succeeds. The blood oozes from the mucous membrane of the stomach, and very rarely indeed from the rupture of a blood-vessel. It is usually followed by a discharge of black blood from the bowels.

The causes are generally indicative of a deranged state of the system,—as indigestion and its accompaniments, producing a plethoric state of the blood-vessels of the stomach, or the interruption or suppression of discharges, or a diseased state of the blood itself, as in purpura or scurvy, external violence, or great exertion after a full meal.

The blood may pass off from the stomach by the bowels, and not be discovered for some time, and even when discovered in the motions the source of the bleeding may be difficult to ascertain. Blood, again, which has been swallowed may be thrown up from the stomach, as from the nose, mouth, fauces (or even from the lungs), and thus excite unnecessary alarm; and in some cases blood has been purposely and stealthily swallowed. Bleeding from the stomach is generally distinguished by a sense of oppression, with paleness and fainting which precedes it, the blood being thrown up by one full vomiting, and commonly with some food; whereas in hæmoptysis there is mostly cough, and the blood is spit up in a succession of mouthfuls.

Treatment.—The most perfect rest should be observed, and cold air admitted into the room. Ice cold drinks should be given, and active purgatives taken,—as a dose of calomel or blue pill over night, followed in the morning by the compound senna mixture (No. 20). Lumps of ice may be swallowed, and in extreme cases applied to the pit of the stomach. The purgatives should be repeated daily, or every second day, till the stools lose their black colour. The diet should at first be as spare as possible, and the patient afterwards supported by nutritious broths and farinaceous puddings. Should the bleeding continue, fifteen, twenty, or thirty drops of spirits of turpentine should be taken in cold water every four or six hours, or the pill No. 55 washed down with a dessert-spoonful of vinegar in a glass of water, or the mixture of gallic acid (No. 59). The diet may be gradually and carefully increased, and the strength upheld by the aid of light tonics (Nos. 125, 126, 127, 129), and occasional aperients, as pills Nos. 40, 40*a*, 41, 42.

Where the disorder is caused by suppressed discharge from piles, some leeches should be applied to the anus, and the treatment for piles adopted; where from suppressed monthly discharge, see Amenorrhœa; where from purpura or scurvy, tonics and the mineral acids will be appropriate.

HÆMOPTYSIS; OR SPITTING OF BLOOD.

Hæmoptysis, or hæmorrhage from the lungs, is always a disease of fearful interest. It may be primary or idiopathic, in which case it constitutes the whole disease; or it may be a symptom direct or indirect of some other disorder, when it is called secondary. Again, it may occur irregularly or periodically as a substitute for the suppression of some customary evacuation, and it is then termed vicarious.

Spitting of blood is mostly preceded by congestion of blood in the lungs, and generally proceeds from the mucous membrane of the bronchial tubes, by the process of exhalation, and not, as is more popularly thought, from rupture of a blood-vessel; sometimes, but very rarely, the blood may issue from the rupture of a vessel in consequence of the extension of disease, but then it flows so abundantly as almost always to terminate fatally.

Active hæmorrhage from the lungs occurs sometimes in youth, in the same way as bleeding from the nose in childhood, but it is far from being common, and for the most part is indicative of some morbid state of the constitution. The most frequent is that which is vicarious of the menstrual discharge in females, and this is not usually attended with any peril to life. Secondary hæmorrhage is mostly symptomatic of some internal disease, as consumption, and in this case it varies in the period of its occurrence, and in the symptoms by which it is succeeded. In many, hæmoptysis precedes for years any more marked symptom of consumption; in others it does not occur till late in the disease; and occasionally the first hæmorrhage proves fatal; but it is not uncommon for pulmonary consumption to run its whole course and terminate fatally, unattended with any spitting of blood.

The next disease productive of hæmoptysis is organic disease of the left side of the heart, whereby the blood is impeded in its passage through the lungs, which consequently become loaded or congested, and hæmorrhage ensues; some of the blood is spit up, and some is effused into the substance of the lungs, or into the air-cells, where it coagulates; now and then the blood will be effused into the lungs without any being thrown up.

Symptoms.—A sense of weight on the chest, with some difficulty of breathing, flushed face, anxiety, pain, heat, or pricking of one spot, commonly beneath the breast-bone, and a saltish taste in the mouth. Before the issue of blood there is a tickling sensation in the upper part of the wind-pipe (larynx), which excites cough and hawking, followed by an eruption of frothy bloody expectoration; sometimes the mouth fills with blood without any cough or irritation of the throat. Those who are subject to hæmoptysis are generally apprised of its approach.

Causes.—Full habit, narrow, ill-formed chest, disease of lungs or heart, excessive heat, violent exertion in speaking, singing, or bodily exercise, and suppression of habitual or customary discharges, more particularly menstrual. Under any circumstances it is a formidable malady, but unless the hæmorrhage is violent, the hæmoptysis itself terminates favourably.

Treatment.—As most cases depend on congestion, the disease will be arrested by removing that state, taking away blood by cupping between the shoulders, or the application of leeches to any spot where there is pain, otherwise to the hollow of the throat just above the breast-bone. Dr. Graves says, "No topical bleeding appears to me so useful as an oozing of blood from that situation where the cough is teasing and hæmoptysis considerable. Six leeches should be applied every six hours, or in less severe cases a smaller number, and at more distant intervals." Cool fresh air should be freely admitted, the breast and shoulders raised, the sparest possible diet allowed, and the most perfect quiet observed. The patient should not be allowed to speak; the bowels ought to be freely purged with a saline purgative mixture (No. 20), preceded in cases of costiveness by three or four grains of calomel, and assisted by a lavement; and the bowels should be afterwards kept open by o. 38. The hæmoptysis continuing, two grains of ipecacuanha should be given every quarter of an hour till there is some abatement. In slighter cases, after free purging, the mineral acids may be given, as from fifteen to twenty drops of dilute sulphuric acid in water three or four times a day, or in combination with alum, as No. 56, or gallic acid No. 59; and where there is much heat or feverishness, saline mixture No. 112, with five or ten grains of nitre added to each dose, and the imperial drink No. 50. When the congestion has subsided and the hæmorrhage continues, the pills No 55 may be taken, each dose being washed down with a dessert-spoonful of vinegar in half a glassful of water: on other occasions from ten to fifteen drops of spirits of turpentine in cold water, and in cases of emergency, where no other remedy is at hand, common table salt, taken in successive spoonfuls. The strength must always be carefully husbanded, a more nutritious diet allowed, restoratives, as the muriated tincture of steel, ten or fifteen drops twice or thrice a day, or the mineral acids given (see Mixtures No. 125, 126, 127, 129), and the chest sponged with vinegar and water daily.

Persons disposed to hæmoptysis should be careful to avoid the exciting causes, live temperately and abstemiously, forego late hours and crowded assemblies, &c. In habitual and protracted cases Dr. Graves recommends a voyage to or residence in Australia (Clinical Lectures, p. 143).

HEADACHE.

Headache depends on a variety of causes, and is often an attendant symptom on acute or chronic maladies, as fever and affections of the brain. Perhaps the most common cause is an unhealthy state of the digestive organs, especially the stomach and bowels: when costiveness is the source it must be treated by duly regulating the bowels, taking a moderate quantity of digestible food, using efficient exercise, and observing regular hours, as described under the heads Dyspepsia, Bilious Headache, and Chlorosis.

Headache sometimes occurs unconnected with any general disease; from local irritation, exposure to cold or damp, or checked perspiration. It may occur in the robust and plethoric, and also in the enfeebled and emaciated from deficiency of food, breathing bad air, anxiety of mind, profuse discharges, protracted nursing, &c.

The disease may be external or internal.

EXTERNAL HEADACHE is muscular, rheumatic, chronic, or periodic. In this the pain is diffused over the whole scalp, which is tender to the touch; it is increased by the motions of the eyes or jaws, is often accompanied by pains about the neck and throat, is of a remitting character, and is mostly caused by exposure to cold.

Treatment.—The pill No. 15*a* is to be taken, the feet immersed in a hot bath, and the head bathed with Eau de Cologne, or the spirit lotion No. 149. In those of a plethoric habit, or where it is accompanied by a flushed face, leeches should be applied behind one ear or to the temple, and a dose of the mixture No. 11 taken night and morning.

Where the pain is partial, or limited to one spot which is extremely tender to the touch, and when it appears to be deep-seated and of long duration, the pill No. 10, 15*a*, or 16, should be taken every night, and half an ounce of the fluid extract of sarsaparilla twice a day. Where it assumes an intermittent form and is limited to one side of the head (termed Hemicrania), or over one eye (Brow Ague), without any great tenderness on pressure, the part may be cautiously rubbed with the aconite liniment No. 133, and the quinine mixture 125*a*, or the pills No. 131, taken: a light nutritious diet, a regular action of the bowels, and exercise in the open air, should be observed.

INTERNAL OR CONGESTIVE HEADACHE is a form of headache occurring in young women who are in common language called extremely nervous, which is unconnected with any derangement of the sexual functions. In some there is a flushed countenance; others are pale, with less apparent fulness; in all, the pain is aggravated by taking wine. It is sometimes accompanied by debility, watchfulness, and hysteria in various degrees. Although severe and apparently alarming, it is rarely dangerous.

The pain is not relieved by active purgatives, and is aggravated by the loss of blood, which, however, now and then affords temporary relief. In debilitated, nervous, and hysterical persons, the evacuating treatment will eventually increase the violence of the disease, and dispose more than ever to congestions in the same or some other organs. Cold applications should be made to the head, great attention paid to the bowels, which should act at least once a day fully, for which purpose turpentine lavements may be useful; the bladder should be regularly emptied, to prevent the accumulation of urine; dry cupping may be applied to the temples, back of the neck, or between the shoulders; friction, with stimulating liniments to the abdomen and lower extremities, and turpentine exhibited internally; these failing, the nitrate of silver may be tried. In violent stages of this disorder, one or two drachms of the spirits of turpentine taken in cold water twice or thrice a day will remove flatulency, and produce moderate action of the bowels; where it causes difficulty in making water, or bloody urine, it must be laid aside, and the nitrate of silver given in half-grain doses three or four times a day, for five or six days, made into a pill with crumb of bread; or, when the bowels are constipated, combined with one or two grains of the compound extract of colocynth, which will be found invaluable in the habitual stomach headaches of literary men of sedentary habits. Where there is much debility, the application of the strong acetic acid liniment (No. 150) to the whole course of the spine, or the croton oil liniment (136*a*), or a succession of mustard poultices from the back of the neck downwards, will afford great benefit; and in all cases a nutritious diet, air, exercise, and clothing, should be attended to.

HEART DISEASES.

The heart is an organ of complex structure and formed of different tissues. It is subject to both general and partial diseases, and is also much influenced by derangement of other organs,—as the liver and stomach. It is intimately connected with the emotions of the mind; and there is no class of diseases which people are so apt to fancy themselves subjects of, as those of the heart.

Diseases of the heart are divided into functional or nervous affections, and the structural or organic. Of the first are palpitation, syncope (see Fainting), and angina pectoris: which see.

PALPITATION (OR NERVOUS PALPITATION) OF THE HEART is a frequent, strong, and tumultuous movement of the heart without any marked organic disease. Every one has experienced palpitation in his own person who has run himself out of breath. People are not ingeneral sensible to the beatings of their heart; but when these become inordinately frequent and forcible, the sensation is most troublesome and distressing. Generally there is an increase of both force and frequency in the contractions ofthe heart. The pulsations are sometimes irregular also, but not necessarily so. The increased beating is not only felt by the sufferer, but is often heard also both by himself and others. When the heart throbs violently without the individual being conscious of it, there is disease; but the palpitation is often connected with functional or nervous disorder only, unaccompanied with any change of structure. Palpitation of the heart and irregularity of the pulse frequently depend on disordered stomach, although there may be no other sign of stomach complaint; and a slight cause will serve to produce this.

"A gentleman was very anxious about himself because a fluttering sensation frequently occurred at his heart, an intermission of one or two beats, and then a violent throb, when the organ again resumed its action. It happened so often that he persuaded himself that he had disease of the heart, and should some day suddenly drop down dead. As there was no other symptom whatever of heart disease, he was told that the intermission depended upon some derangement in his digestive organs, and he was advised to leave off different articles of food and drink in succession, in order to discover if any one thing in particular offended the stomach. He began by abstaining from tea, which he had been in the habit of drinking in considerable quantity; and thereupon the fluttering of the heart ceased. After a while he took to tea again, and then the fluttering returned. He repeated the experiment many times, and always with the same result, till at length his mind was satisfied; and by renouncing tea altogether he got rid of his palpitation, and of his apprehensions."

Besides these irregular movements which arise from disordered stomach, there are others of a purely nervous kind, depending upon a peculiar and highly sensitive condition of the nervous system. Persons of this temperament, whether male or female, are subject to palpitation, but especially young women, and they are usually pale, comparatively bloodless, and hysterical; the menstrual functions are deranged, and the blood is watery and poor. In such persons it is met with in the most aggravated form, and is often so violent as to be truly alarming: palpitations having once begun are apt to be increased by whatever increases the susceptibility of the nervous temperament,—as indolence, luxurious habits, the perusal of works of imagination, and the constant attention with which the mind dwells on the ailment. Individuals so circumstanced easily conceive themselves labouring under heart disease, and thus, under the influence of imaginary fears, produce the very maladies they dread. Nervous palpitations are apt to come on when the patient is quite tranquil: those which arise from organic disease, on the contrary, are mitigated by repose. Where there is merely nervous palpitation, the individual lies as well, and perhaps better, on the left side than on the right; whereas, where the heart is actively diseased, persons prefer lying on the right side, because the heart is less confined in its motions, or has more space to act in.

The Treatment must be directed towards removing the causes both predisposing and exciting, and to getting rid of the nervous condition by those measures which give a more healthy and vigorous tone to the mind and body. The pursuits should occupy the attention without agitating the mind,—as domestic duties, music, work, dancing, drawing, and cheerful society in doors; and gardening, botanising, horse-exercise, out of doors. The diet should be well regulated and generally frugal in though the feeble, it may be more liberal; all should forego strong tea and coffee, and take instead milk and water, cocoa, or milk porridge.

In plethoric individuals local bleeding by cupping or leeches may be advisable, but this in nervous people requires great discretion; and a course of purgatives and antispasmodics, as the pills No. 19, or mixtures No. 21 or 23, and the occasional exhibition of the mixtures No. 49, No. 78, and No. 79, will be beneficial; and subsequently bathing.

In the pale and emaciated, the remedies are tonics combined with purgatives and a larger portion of animal food. Ten grains of the compound steel pill may be taken twice a day, washed down with some light bitter, or the mixtures Nos. 122 and 123, and after a time the pills No. 131, succeeded by the mixtures of citrates of iron Nos. 129*a*, and 129*b*; or by equal parts of the compound steel mixture and compound decoction of aloes in doses of two table-spoonfuls three times a day; the shower bath where it can be borne, otherwise sponging with salt and water, and change of scene and air, should be tried.

STRUCTURAL OR ORGANIC DISEASES OF THE HEART are of too serious a nature to be treated of in a work on domestic medicine, further than by remarking that, where such are suspected, all sources of mental excitement, all violent bodily exertion, and dissipation of all kinds, should be most carefully avoided, the general health scrupulously attended to, and recourse had to professional aid without delay.

HEARTBURN; CARDIALGIA.

An uneasiness at the pit of the stomach, with a sense of burning heat ascending the throat, accompanied by acid and acrid eructations, sometimes by faintness, nausea, and vomiting, and mostly associated with water brash (a discharge of limpid fluid from the stomach). The upper orifice of the stomach is named cardia, and is particularly sensible and liable to be disturbed by irritating causes; whence this disorder is called cardialgia.

Causes.—All indigestible food, especially fat, oil, butter, and cheese in excess. Tea, coffee, warm liquids, and dram-drinking; anything interfering with the functions of the stomach, as strong mental emotions; and pregnancy in the latter months. The more usual time of its occurrence is soon after meals.

Treatment.—The administration of alkalies combined with mild aperients, as the mixtures Nos. 1 or 6, the pills No. 7, or the alkaline solution with rhubarb, two tea-spoonfuls in a glass of water twice a day. Where there is much flatulence, the powder No. 48; and if there be much pain three drops of laudanum may be taken with each dose. In protracted cases a leech or two should be applied to the pit of the stomach, or a succession of small blisters (the size of a shilling) in its vicinity, or a pill No. 16 every night, and the mixture No. 120. A well-regulated and simple diet, with a little of brandy in water for dinner, instead of beer or wine, and active walking or horse exercise, will tend to prevent its recurrence (see Dyspepsia).

Hiccup, or Hiccough,

Is a spasmodic motion of the diaphragm and parts adjacent. It generally arises from irritation of the stomach, caused by errors of diet—as eating too fast—the presence of acidity or wind, or the irritation of worms, and it is a frequent symptom of hysteria.

Hiccup is often relieved by any circumstance arresting the attention, whether it be of a pleasurable or an alarming nature—as sudden fright—or by suspending the breath. In ordinary cases it goes off tranquilly; it may be generally stopped by swallowing a glass of cold water slowly, but without interruption, or a tea-spoonful of sal-volatile in a glass of cold water; or applying a hot mustard poultice to the pit of the stomach. Where it occurs frequently the mixture No. 1 may be taken; attention should be paid to the diet, the bowels carefully regulated, and the treatment for indigestion resorted to. To infants nurses are in the habit of giving a little sugar. A tea-spoonful of dill-water, or the carminative mixture No. 61, is better.

Hiccup coming on at the termination of any malignant disease may be looked upon as the forerunner of death.

Hip-joint, Disease of.

This is scrofulous caries of the hip-joint, which commonly makes its attack without any apparent cause before the age of puberty, and is of so insidious a character that it often makes considerable progress before it is observed, and is apt to be mistaken for growing pains or rheumatism. The first occurrence of pain is not unfrequently referred to the knee, and is followed sooner or later by lameness; and the limb appears elongated and the hip flattened. Recourse should he had *without delay* to surgical advice (see Scrofula).

Hooping-cough, or Whooping-cough; Chincough.

A violent convulsive cough, occurring in fits at longer or shorter intervals, and consisting of several expirations, followed by a sonorous inspiration or whoop. It is commonly passed through in childhood; hence it is comparatively rare in adults, as it is seldom met with in the same individual more than once during life. The duration is various, from four or six weeks to as many months, depending on circumstances,—as the season of the year, the beginning of the summer being the most common.

Symptoms.—It commences like a common cold or catarrh, which continues for the space of ten or twelve days, when the fits or paroxysms gradually come on, being at first slight and at long intervals. They may thus be described:—After a succession of violent expulsive coughs, a long-drawn inspiration is made, accompanied with the peculiar crowing or whoop: this inspiratory effort is again immediately followed by similar expulsive coughs, and the alternations continue till relieved by the expectoration of a quantity of glairy phlegm from the lungs, and sometimes by vomiting the contents of the stomach, and in stout children by bleeding from the nose, which is not an unfavourable symptom. There is then an interval of perfect freedom from cough, and the child resumes its ordinary occupation, and, where the fit has terminated by vomiting, will frequently express a desire for food; but when the fit has been severe, it is succeeded by much fatigue, hurried respiration, and exhaustion. During the cough the child seems to be on the point of suffocation; the face becomes swollen and livid, and the eyes prominent, and the frame so shaken that the little patient tries to steady itself by laying hold of some fixed object,—as the nurse, a chair, or the table; and those who have been some time ill instinctively seek for some means of support as soon as they feel the fit coming on. The disease is in some cases so slight that it is hardly possible to determine whether it has existed or not, as scarcely a hoop has been heard; in others the paroxysms are very severe, and will occur at the same period in different children in the same family. The number of paroxysms in the course of twenty-four hours is variable also; they are generally more frequent during the night than in the day. In the earlier paroxysms the mucus expelled is scanty and thin, and is got up with difficulty. As the disease progresses, the secretion is more abundant, and at the same time thicker and more easily brought up, and on that account the fits of coughing are less protracted. When the hooping-cough exists alone, the patient during the intermission is quite well. As the disease goes off the paroxysms occur at longer intervals, and are shorter in duration.

Children are very susceptible of this complaint, and it is very contagious. It may also probably be self-engendered and supervene on other coughs; hence few children escape an attack of it.

Simple hooping-cough is scarcely to be considered as dangerous, but during its progress it frequently becomes complicated with disorders of the head and chest, as convulsions, bronchitis, and pneumonia—rendering it a very hazardous and too often a fatal disease; and when it is of very long duration the air vessels (or extremities of the bronchial tubes) often become permanently dilated, causing afterwards an asthmatic tendency. It is not surprising that the head and lungs should be affected, as during the fits of coughing the blood is mechanically detained in the head, and its transmission through the lungs is interrupted; hence they both become congested. Head affections are much to be dreaded when hooping-cough occurs in young children during dentition, as many die of convulsions.

Treatment.—The disease will for the most part run a certain course: our object must therefore be to diminish its violence, shorten its duration, and obviate serious mischief of the head or chest. In the first stage we should counteract any tendency to inflammation, palliate urgent symptoms, and arrest the spasm which keeps up the disease. For this purpose the diet should be carefully regulated and be of the simplest kind, and consist for the most part of milk, farinaceous puddings, light animal food, and roasted apples; solid meat should never be allowed, unless the patient be very feeble. The drinks may consist of tea, milk and water, barley-water, or whey. The bowels should be kept in an open state. Except in summer, or very fine weather in the spring and autumn, children are better kept in the house; and in winter, perhaps, in two rooms, which should be kept warm, but not hot, well ventilated by opening the window at the top, or the door at intervals; or the child may remain in one apartment during the free admission of air to the other. An occasional emetic should be given twice or thrice a week, followed in the morning by an aperient of rhubarb and magnesia, or the compound powder of jalap, or calomel and rhubarb. For the cough either of the mixtures No. 75, 82 or 83, or the draught No. 104, may be given, and later in the disease No. 86: those containing prussic acid, as No. 80 or 81, or that with belladonna No. 101, are too formidable for children, in domestic practice. Where a child is very restless at night, the compound ipecacuanha powder (two or three grains being a proper dose for a child three years old) may be given at bed-time; mustard poultices to the throat, chest, and between the shoulders, will be beneficial, or those parts may be rubbed with a stimulating liniment. When the belly is sore from coughing, the opiate liniment No. 131, and Roche's embrocation No. 135; embrocations with garlic were formerly in much estimation. Where there is much difficulty of breathing, the vapour of ether or turpentine may be diffused in the apartment. The cough syrup No. 84, or Fuller's Spanish infusion No. 88, will be found useful stimulants; but in the later stages tonics are better, as preparation of steel, viz. the steel wine: or,

> Take of Extract of Conium, ten grains; Sesquicarbonate of Ammonia, ten grains; Steel Wine, half an ounce; Syrup, half an ounce; Peppermint Water and water sufficient for four ounces. Mix. A table-spoonful three times a day for a child three years old.

Or compound steel mixture, or decoction of bark; but above all, change of air, and gradual restoration to a more liberal diet, will accelerate its departure.

When hooping-cough is combined with inflammation of the chest, known by fever and urgent difficulty of breathing continuing between the fits, it is better at once to seek for medical aid, and a more rigid antiphlogistic regimen must be observed, and leeches and blisters applied to the chest (see Acute Bronchitis).

Where there is a threatening of head symptoms—as the occurrence of squinting, stupor, or convulsions—leeches must be applied to the temples without delay, and cold lotion to the head, and small and repeated doses of calomel and James's powder given (see Hydrocephalus).

There are many medicines recommended as specifics for the relief of hooping-cough.

Dr. Arnoldi says, "In hooping-cough, at whatever age, whether it be a child at the breast or a full-grown adult, I administer nitric acid in solution as strong as lemon-juice, sweetened *ad libitum.* I have given to a child of two years old as much as one drachm and a half of concentrated nitric acid, diluted in the above manner, per diem, and I have never known the disease to resist its influence beyond three weeks" (Half-Yearly Abstract of Medical Sciences, page 90, vol. xvi., 1852).

"The tincture of artificial musk," Dr. Watson says, "in three or four minim doses, may be given at the outset, and the dose increased till some sensible effect is produced, and that dose persisted in without further augmentation."

Dr. Reece recommends from ten to twelve drops in a little barley-water two or three times a day.

The application of solution of lunar caustic to the glottis has been highly eulogised, but this should be only applied by a medical man (Braithwaite's Retrospect of Medicine, p. 76, vol. xvi., 1852).

HYDROCEPHALUS; WATER IN THE HEAD.

Hydrocephalus is divided into two kinds,—the acute and chronic. The term water in the head refers only to one symptom or stage of the disease, which is the effect of previous inflammation of the brain and its coverings.

ACUTE HYDROCEPHALUS is in the beginning inflammatory, and commences in various ways. It is almost confined to young children between the first and ninth year, rarely extending beyond the twelfth year; it generally only occurs in those of a scrofulous habit, and is peculiar to some families, affecting all or the greater part of the children at a certain age. Many writers consider the affection of the brain as merely secondary to a diseased state of the digestive organs: but whether this state causes or simply indicates the disease of the brain, it is valuable in directing our attention to the head.

It is important to detect the approach of the disease, which is mostly gradual and obscure. The child loses its animation, becomes flushed or heated at intervals, is capricious in its appetite, at one time refusing food altogether, at another eating most voraciously, and vomiting often; the bowels are torpid, the motions pale or dark, always unnatural, and smell sour and offensive: the belly is sometimes tender. The spirits are variable, and the child irritable, fretful, taciturn, heavy, drowsy, and listless; it will sometimes stop in the middle of its play, looking round as if it were lost, or giddy, and then will resume its sport as if nothing had happened. It is often unsteady or tottering in its gait. It puts its hand to its head, or hides it in its mother's lap, and, if an infant in the arms, clings to its nurse, as if alarmed. Other children on the approach of the disease are more wakeful and susceptible than usual, and start frightened at the least noise; when in bed they are restless or sleep unsoundly, grind their teeth and moan, put the hand to the head, or move it about, turn their eyes from the light, and occasionally scream out, or awake from sleep suddenly, distressed and alarmed.

Sometimes the disease sets in with great violence, by the sudden accession of fever or convulsions, without previous warning; at other times it occurs during the progress or on the decline of any protracted febrile or eruptive disease, as remittent fever, hooping-cough, scarlatina, or painful dentition. It may also be caused by blows, or a shock from a jar or fall, without the head being touched, and it would occasionally appear to arise from mental distress or alarm of the mother in the latter months of pregnancy.

The symptoms have been divided into three stages,—1st. Stage of excitement, or increased sensibility; 2ndly. That of diminished sensibility; 3rdly. That of convulsion, or palsy.

When it commences with an increased or inflammatory action of the brain, its first stage is marked with symptoms of fever, loss of appetite, nausea, vomiting, white and furred tongue, hot dry skin, flushing of the face, shooting pains in the head, throbbing of the temporal arteries, quick pulse, aversion to light and sounds, and watchfulness; which symptoms always suffer an excacerbation in the evening, but towards morning become milder. Where no inflammation of the brain is discernible, the countenance is expressive of distress and suffering, the child knitting its brow strongly, as if from pain over the eyes; its temper is fractious, it wishes to stay in bed, or in a recumbent position, has an aversion to being moved, answers questions unwillingly though correctly, and as the disease advances rolls its head from side to side, or throws its arms over it. It often sighs, and its breathing is extremely irregular, particularly when asleep. It is averse to taking food, either liquid or solid, especially the latter, and apparently suffers from constant nausea; but what is thrown up consists merely of the food and drink which have been taken. The urine is scanty and high-coloured, and is retained longer than usual: great costiveness prevails, and no stool is voided without the aid of strong purgatives, assisted by clysters. The motions, when obtained, are commonly of a dark green or pitchy colour, with an oily or glossy appearance, and their smell is more of a cadaverous nature than that arising from feculent matter, and vomiting occurs on the slightest movement. The disease at length makes a remarkable transition, denoting the commencement of the second stage. The child lies on its back with its eyes half open, screams frequently, and without being able to assign any cause; its sleep is much disturbed; there is a considerable dilatation of the pupils of the eyes, which do not contract on being exposed to light, but appear to quiver or tremble; the pulse becomes slow and unequal, and torpor or double vision ensues. The vomiting at length ceases, and the urine and stools pass unconsciously, and there is constant picking of the lips and nose with tremulous fingers. This condition may continue for one or two weeks with occasional deceitful appearances of amendment. The symptoms of the third stage at length begin: the pulse again becomes quicker, and the torpor passes into complete stupor, followed by convulsions of all forms and degrees, from the most violent general convulsions to mere spasmodic twitching; the child rolls its head perpetually from side to side, moans continually, and waves its hands, or more commonly one hand, in the air, and kicks with one leg, the other hand and leg lying immoveable or palsied; the eyes are covered with a white film, partial perspirations break out, the cheeks are alternately pale and flushed, the belly is drawn in, the pulse becomes weaker, and the child dies in a violent convulsion.

These symptoms do not necessarily all occur nor follow each other in regular succession; and sometimes a child appears in health on the night when it is seized with convulsions which destroy it in a few days.

This disease commonly terminates in three weeks from its commencement, although in some instances it has been protracted to five or six weeks; like every disease of the brain, its duration is uncertain.

Hydrocephalus is distinguished from the remittent, or bowel fever of children, by the constant nausea and frequent vomiting which accompany the former, by the aversion to light and noise, the obstinately costive state of the bowels, the dark pitchy colour and the peculiar cadaverous smell of the motions, and the complaint of the head. In remittent fever, on the contrary, the bowels are relaxed, the motions large, feculent, and of a light colour; the belly prominent, tender, and very hot, with wind rumbling about; the tongue furred, but soon becoming red at the tip, and the heat of the skin constant and pungent; the child does not complain of its head, and there are distinct remissions and exacerbations.

Hydrocephalus is a most dangerous disease, and when once established is generally fatal; this renders it so essential to detect its approach. The prognosis is somewhat more favourable where the disease commences violently, than where it comes on slowly and insidiously, or supervenes on other diseases; as in the former active measures can be resorted to, and the disease is less likely to depend on any permanent cause, or to have advanced into an irremediable state.

Prevention.—Where the disease has occurred in children of the family, or the premonitory symptoms have appeared, and in those of scrofulous diathesis, the following rules should be attended to:—The child should not be weaned too early, or till eight teeth are cut, even if it should require a second or third wet-nurse, who should be carefully chosen: after weaning it should be fed on a nourishing unstimulating diet,—as bread, or bread and butter, for breakfast, and milk, or milk and water, light farinaceous pudding, or broth, for dinner; but, as soon as it is admissible, a moderate portion of animal food and well-dressed vegetables should be allowed. It should be freely exposed to the air at all seasons, being suitably clothed, particularly about the lower extremities and belly; it should be bathed or sponged daily in salt and water. The bowels must be kept in a regular state, but not purged unnecessarily; and during dentition the gums should be lanced efficiently if required. If threatening symptoms occur, the alterative powder No. 93 may be given every other night, and two grains of James's powder every night, and sufficient rhubarb every second or third morning to cause moderate purging. A succession of blisters may be applied behind the ears, or on the back on each side of the spine, or a seton or an issue may be made in the nape of the neck or arm, as there is good reason for expecting the best effects to have been produced by such artificial irritation kept up till the chance of disease has passed by. Children most liable to attacks of hydrocephalus are often most intellectually endowed. "Precocity of mind implies danger to the health of the body" (Watson). Instead, therefore, of encouraging such precociousness, it is better to obtain good health and vigour of frame, and let the mind lie fallow till the constitution is established and the period of danger passed: it is a great mistake to cultivate the mind too early.

As far as domestic practice is concerned, attention to the above rules should be the boundary; beyond this the treatment is surrounded with difficulties: for although the disease is inflammatory, the subjects are delicate children from predisposition, and the depletory remedies should be used with great caution. Leeches may be applied in proportion to the age and vigour of the child (as three to a child under a year old), behind one ear or to the crown of the head: the bleeding should produce some sensible effect, and may be repeated or not according to the violence of the symptoms, but not after the complete setting in of the comatose state. A full dose of calomel (two or three grains) combined with five or ten grains of the compound scammony or compound jalap powder may be given, assisted by a lavement, and the purgative, &c., repeated, or the compound senna mixture given till the bowels act freely, and then one or two grains of calomel, with two grains of James's powder, every six hours, till followed by green motions. When the head is hot, cold water or iced water should be applied to it, by one layer of wet linen, changed as it becomes warm; or by letting water fall in drops or a small stream on the head, the neck and shoulders being guarded, and the feet, as high as the knees (as the child lies) placed in a warm mustard foot-bath. When torpor comes on, blisters should be applied to the nape of the neck, or, when there is deep coma, to the scalp, and to the calves of the legs. When, on the decline of the disease, there is much irritability or wakefulness, one or two grains of the compound ipecacuanha powder may be given at bed-time, or every six hours, and the solution of morphia (No. 94) is eminently beneficial. Should the vital powers become depressed, stimulants should be given,—as four or five drops of the aromatic spirit of ammonia at intervals, in milk, or the stimulant mixture No. 44*a*, or, to a child a year old, a teaspoonful of equal parts of wine and beef-tea every hour or two till it rallies. Should the child be so fortunate as to recover, the usages of health must be gradually resorted to; and a wet-nurse or asses' milk is the most appropriate restorative food.

SPURIOUS HYDROCEPHALUS is a state resembling hydrocephalus, from which it is seriously important that it should be distinguished. The child has a pale face, with an occasional flush, a cool or cold skin, and exhibits extreme languor, heaviness of the head and drowsiness, lying with its eyes half open: on inquiry it will be ascertained that the child has been suffering from diarrhœa or other debilitating cause, or perhaps from loss of blood in consequence of the application of leeches, under the supposition that it was suffering from inflammation of the brain; the fontanelle will be found to be concave or depressed. Spurious hydrocephalus mostly occurs after weaning, before the child is accustomed to the artificial food. The remedies are, plenty of breast-milk or asses' milk, with a few drops of brandy at intervals. The child should be warmly clad about the abdomen and lower extremities, fresh air should be freely admitted into the apartment, and it should be kept in the recumbent position, either in the nurse's arms or on the bed.

CHRONIC HYDROCEPHALUS, or Dropsy of the Brain, is mostly a congenital disease, and sometimes it is the result of acute hydrocephalus, at other times the forerunner of it; now and then it is met with in persons advanced in life, of which Dean Swift is an example. (Where the head is considerably enlarged from this cause in the womb, the child is often destroyed from pressure during its birth; at other times the head is broken down by instruments to enable it to pass and preserve the mother.) The disease will occasionally go on for years without the bodily functions or intellect being much impaired. The bones of the skull are, in the earlier stages, widely separated, so that the sutures and fontanelle are broad, but latterly there is a bony union; the head becomes large and misshapen, the skull thin and transparent, the face appearing small and out of proportion to the enlarged head.

Treatment.—The chances of cure are very little, but something may be expected from internal and external remedies. Half or a quarter of a grain of calomel is to be given twice a day, but not to cause purging; the scalp is to be well rubbed daily with a drachm of ointment, consisting of equal parts of strong mercurial ointment and ointment of juniper berries, and the head kept covered with a woollen cap. An infant should live on breast-milk only, an older child on a liberal diet, and in mild weather be as much in the open air as possible. If there be no improvement at the end of two months, the acetate of potash, or squills, or the two combined, should be also given, and an issue made in the back of the neck, or on each arm, and kept discharging for several months. When there is some amendment, restoration to health will be accelerated by small doses of quinine—as a quarter or half a grain—thrice a day. The mechanical remedies are compression by bandaging with strips of adhesive plaster, and letting out the fluid by puncturing, or the two combined; they are both deserving of a trial in such an extreme case. (Watson's Lectures; Lizars' Encyclopedia of Practical Medicine, art. Chronic Hydrocephalus; Conquest, "Lancet," 1830.)

HYDROPHOBIA, OR CANINE MADNESS.

Hydrophobia (literally, dread of water) is the effect of poison from the bite of a rabid animal—commonly the dog—but also the wolf, the fox, and the cat, and, Mr. Youatt says, the badger and the horse.

Poultry are susceptible of it. It is generally considered that the skin must be wounded or abraded, and that the poison is not communicable through the sound skin; but it would be through a mucous membrane, as the lining of the lips, the mouth, and the nose. It does not follow that every one who is bitten by a mad dog should have the disease; the majority generally escaping. (John Hunter mentions an instance in which of twenty-one persons bitten only one suffered. Dr. Hamilton estimates the proportion to be one in twenty-five). This immunity has conferred reputation upon many vaunted remedies. There is some doubt whether the saliva of a hydrophobic patient can communicate it to a second; due precaution should nevertheless be used to prevent it coming in contact with a wounded surface.

Symptoms.—At a period after being bitten, varying from twenty-one days to nineteen months, called the period of incubation, the sufferer experiences a sense of chilliness, languor, lassitude, restlessness, and headache, accompanied mostly by a sense of cold and numbness in the bitten part, occasionally amounting to actual pain, extending up the limb. In two or three days these symptoms are followed by great garrulity, frequent sighings, and a horror of liquids; not only the attempt to swallow them, but the very sight of them, or the sound of running water, exciting a peculiar choking spasm and sobbing: then follow a sense of suffocation, copious secretion of saliva, and violent spasmodic convulsions of the whole body; the countenance is exceedingly anxious, and there is much mental distress, with extreme irritability and sensibility of the whole frame, aggravated by the slightest noise, or the passage of a gust of wind across the face; the intellect is mostly perfect. Great effort is required to get rid of the viscid saliva, and the sounds of the spitting and blowing to effect this have been exaggerated and compared by the credulous to the barking and foaming of a dog: at length the sense of suffocation and the convulsions increase, and wild delirium, with extreme exhaustion, succeed, and ultimately death, sometimes within twenty-four hours, more commonly on the second or third day, but in some rare cases not till the fifth or eighth day. In some few instances these terrific symptoms cease; the patient eats, drinks, and converses, and sinks into a deep sleep, and suddenly wakes up to die, tranquilly, or in a violent convulsion.

Treatment.—No cure has been discovered for this horrible disease when established; the efforts must be preventive. Early excision is the only safe course, care being taken to remove every portion touched by the animal's teeth; the wound is then to be thoroughly washed with a stream of tepid water, poured on for some time, and then healed in preference to keeping up a hurtful irritability in the system by stimulating dressings to the part. Where there is any doubt as to the whole being sufficiently excised, a concentrated solution of lunar caustic may be applied; and where the sufferer will not submit to the operation, the caustic should be liberally used. Mr. Youatt says he never saw lunar caustic fail. If the poison lurk, as is supposed, for some weeks in the part, it may be successfully excised at any time before the disease declares itself. In treating the disease itself, the difficulty of swallowing liquids, or, in some cases, swallowing at all, is a serious obstacle to the application of any internal remedy: a trial should be made of inhalation of chloroform, or of applying a few drops of prussic acid on the tongue, or ice to the upper part of the spine and fauces, or of injecting into the bowels one, two, or three grains of the salts of morphia, in three or four ounces of the jelly of starch, and of friction with mercurial ointment with ten grains of powdered opium mixed in each drachm; a drachm may be rubbed in every four hours. Food or medicine may be injected into the stomach by the stomach-pump while the patient is under the influence of chloroform. Tracheotomy has been proposed, but it would only remove one symptom, that of suffocation. The patient should be confined by a straight waistcoat, to prevent him injuring himself or others. (Lancet, Jan. 22d, 1842.)

HYPOCHONDRIASIS; VAPOURS; LOW SPIRITS;

A certain state of the mind mostly associated with dyspepsia, wherein the greatest evils are apprehended upon the slightest grounds, and the worst consequences imagined from any unusual feeling even of a trifling kind; and in respect to such apprehensions and feelings, there is always the most obstinate belief and persuasion of danger, and even of death itself. It is a species of mental aberration in persons who, though otherwise of sound judgment, reason erroneously on whatever concerns their own health. There is generally languor, listlessness, want of resolution and activity in all their undertakings, and a disposition to seriousness, sadness, and timidity. It seems to depend on a loss of energy in the brain, induced by various causes, as intense study, painful impressions on the mind, distressing events, indolence and inactivity, immoderate venery, intemperate and irregular habits, and deranged digestion.

Such patients are generally worse in the morning, and better after dinner and in the evening. This state sometimes occurs in youths at the age of puberty, but is more prevalent in men after the middle age.

Treatment.—The firm conviction of hypochondriacs in the reality of their supposed diseases, does not allow their feelings to be treated as imaginary, nor their apprehensions of danger as groundless, however evidently they may be so. They are not to be treated either by raillery or reasoning; and great delicacy is required in their management, so as not to impress them with an idea that no interest is taken in their welfare. Endeavours must be made to subdue their disorders, and not to offend an irritable mind by levity, or a morbid sensibility by reproach. Indigestion, low spirits, and despondency, must be treated according to their prevailing symptoms, as prescribed for in dyspepsia and hysteria,—by alterative aperients, antispasmodics and tonics, diet, air, exercise, tepid and shower baths, frictions, &c. The general management of hypochondriacs consists in diverting their attention from their health to the pursuit of new objects, by employments that are unattended with great emotion, solicitude, or fatigue; by cheerful society, music, or play in which some skill is required, and where the stake is not an object of anxiety, and which is not too protracted; by rural sports, which when pursued with ardour, and accompanied by exercise which is not too violent, are most useful; by travelling, by which the attention is engaged on fresh objects, and the body in constant motion in the open air; and by a resort to the Harrowgate, Cheltenham, or Tunbridge spas. Patients who betray the slightest tendency to suicide must be carefully watched.

HYSTERIA, OR HYSTERICS,

Is a convulsive disorder mostly confined to females, and closely connected by sympathy with the generative system. It generally occurs in paroxysms, principally characterised by alternate fits of laughing and crying, with the sensation of a ball ascending from the left side of the abdomen to the throat, and causing a sense of strangulation. The trunk and limbs are so strongly convulsed, and the patient struggles so violently, that it often requires three or four strong persons to restrain a slight girl. The head is mostly thrown backwards, and the throat projected forwards; the face is flushed, the eyelids closed and tremulous, the nostrils distended, and the mouth firmly shut, but there is no distortion of countenance, except from screaming or laughing. She will strike her breast repeatedly, and carry her hands to her throat, as if to remove some oppression there, and will tear her hair, rend her clothes, and attempt to bite those about her. The breathing is deep and irregular, and the heart palpitating; at length a calm ensues, and she lies panting, trembling, and starting at the slightest noise and gentlest touch; or sometimes she will be motionless for a short time, with a fixed eye, and then suddenly the convulsions will be again renewed. This interchange of spasm and tranquillity will endure with variations for some time; eventually terminating in tears, sobs, and convulsive sighs, accompanied by an expulsion of wind upwards, and often by the discharge of a large quantity of pale urine.

There is great difference in the form of the hysterical paroxysm; the slightest consists in a sense of constriction of the throat, increased urinary secretion, and flatulent distension. In more aggravated cases, there is also a dull pain in the stomach, a sense of strangulation, as of a ball ascending up the throat, together with a feeling as of being girt by an iron belt, which arises from a spasm of the diaphragm. In the more severe form, rigors and chills precede the convulsion, and sometimes there is a loss of consciousness, and then the paroxysms resemble those of epilepsy.

On some occasions the patient sinks down suddenly insensible, with slow and laborious breathing, bloated neck, flushed cheeks, and closed and trembling eyelids, but without convulsions, and shortly recovers, sobbing and languid.

An hysterical attack may last for a few minutes only, or for several hours, and even for several days. Persons of great nervous irritability or mobility (a condition more characteristic of women than men, and of the feeble than the robust) are most disposed to hysteria. In this state all sensations and emotions are more intensely felt, and impressions on the body the stronger and more enduring than in other states; continued voluntary efforts of mind, and steady and sustained exertions, are almost impossible, and the muscular motions are usually rapid and irregular.

There is a predisposition to hysteria in the female from the age of puberty to the fiftieth year, or from the accession to the cessation of menstrual life, more marked at the beginning and at the end, and during a state of celibacy, and in the married who do not bear children; it is also common in the early period of pregnancy, and immediately after child-birth. The studious and sedentary, those of delicate health, or of plethoric or scrofulous habit, and those subject to anxiety of mind, costive bowels, or indigestion, are liable to hysteria. Hysterics are excited by excessive evacuations, suppression of the natural secretions, violent mental emotions, and imitation of, or sympathy with others. The subjects of hysterics are commonly young women in whom menstruation is irregular, and who are naturally feeble or have been debilitated by disease or habits of life: they are mostly pale, have cold hands and feet, are subject to chilblains, eat but little, and have capricious appetites, but nevertheless do not become thin, and some even look plump and well. It is a most extraordinary fact, which it is of much importance to bear in mind, that there is scarcely a disease to which the human body is liable that is not simulated in hysteria, and it requires the most severe scrutiny to detect the difference between the fictitious and real malady: among these are inflammation of the abdomen, loss of voice, hiccup, a peculiar cough, which is loud, harsh, and dry, more like a bark than a cough, pain in a spot on the breast-bone opposed to one in the back, pressure on the two together being unbearable; pain in the left side, delirium of various kinds, and paralysis: hysteric affection of the joints are very common, as also of the spine; and contractions of the limbs, obstinate vomiting, constipation, and even pregnancy, may be enumerated among the various simulated conditions. A very great number of the violent and unmanageable symptoms are produced by grief, fear, and despair, and are modified in their intensity by the circumstances of the individual and the causes which excite them: among others, is a peculiar painful sensation of the epigastrium: this, Dr. Laycock says, is often felt by men who are suffering under the pressure of misfortune, and it is that which they vainly "attempt to drown in the bowl." Cases have occurred in the male sex presenting the phenomena of convulsive hysteria, accompanied by occasional paroxysms of choking, laughing, and crying, the patient fancying that he labours under diseases which had no existence but in his own imagination, and showing great unsteadiness and infirmity of purpose. The same impressibility or affectibility of the nervous system, and the same symptoms referable to that system, may exist in both sexes; but these examples are so rare, and occur under such circumstances, that if their similarity to the hysterical paroxysm of the female be admitted, like other exceptions they but serve to prove the general rule, namely, that it is the nervous system of women that is peculiarly implicated in this disease. The existing cause in a great majority of females is connected with the sexual functions.

The distinction between epilepsy and hysteria is sometimes manifest, at others very obscure. There are two forms in each disorder: the one accompanied by convulsions, the other not. The non-convulsive form of epilepsy is characterised by vertigo, and a suspension, however short, of the mental powers; that of hysteria, by derangement of the functions of the chest, abdomen, and the organs of voice. In the fit of epilepsy, the convulsions are involuntary, the insensibility complete: on recovery, the patient has no recollection of what has been going on. In hysteria, the insensibility is less complete, and the patient generally knows what was said around her during her seeming unconsciousness: this is a circumstance of importance to bear in mind, as not only assisting to distinguish the malady, but as putting those attending on their guard against saying anything which it is not desirable for the patient to hear; advantage may also be taken of her apparent want of consciousness, to speak of certain modes of treatment which she will not approve of, and the very mention of which may serve to bring her out of the fit. In the epileptic paroxysm, the face is usually livid, and foam, either of a natural colour or red with blood, issues from the patient's mouth. In the hysteric fit, the face is often suffused, but not convulsed, and the larynx but slightly, so that there is no foaming at the mouth; but there is a peculiar trembling of the eyelid, which Dr. Guy says is a distinguishing symptom of great value, and is a sign of safety. In epilepsy, the convulsive movements prevail more on one side than on the other: the expression of countenance is frightful, the eyelids half open, the eyeballs rolling, or if not rolling, dull and projecting, the mouth drawn on one side, the tongue protruding and bleeding, and the complexion leaden. In hysteria, the flexion and extension of the limbs are more sudden and general, the cheeks red, and the eyelids closed, but if opened, the eye is bright and at rest; the breathing, in hysterics, is sighing and sobbing, and often mixed with cries and laughter. In epilepsy, the respiration is laborious or suspended, with ineffectual efforts of expiration. The distinction between the two diseases is of considerable value; for although hysteria is sufficiently distressing, it is scarcely ever attended with ultimate danger, either to the mind or body.

Treatment.—During the fit, the patient, if violent, should be prevented from hurting herself or others by her convulsive movements, or biting, by fastening her in a counterpane, sheet, or blanket: the dress must be loosened throughout, the face freely exposed to fresh air, and the head and face washed liberally with cold water. Medicine is not of much avail; but a tea-spoonful of salvolatile, ether, volatile tincture of valerian, or assafœtida, may be given in a glass of water or camphor mixture: if the patient cannot or will not swallow salvolatile, snuff may be freely applied to the nostrils: should the fit be of any duration, an enema may be administered, consisting of spirits of turpentine, castor-oil, and tincture of assafœtida, of each half an ounce, mixed with a pint of gruel. Dr. Watson says, "Of all spasmodic affections, hysteria is most readily propagated by moral contagion." In these cases we must employ means that make a stronger impression on the mind than the disease, by dashing with cold water, or applying the actual cautery to the back, or, what is safer and equally effectual, the blistering-iron of Sir A. Carlisle, which is a polished piece of steel dipped in boiling water for a minute or two, and then quickly applied to the back over a silk handkerchief: it has done wonders in preventing the recurrence of the paroxysm where it was before periodical. From this it appears that the fits are in some measure under the patient's command, and, though not absolutely wilful, not wholly uncontrollable.

During the intermission, we must endeavour to remove the exciting cause, by attending to any prominent disorder,—as irregular menstruation, deranged digestion, or costiveness (which see),—to tranquillise the nervous system, and to invigorate the general health: with this view, the bowels should be kept free without being irritated by violent purgatives. If there be extreme debility, tonics, in combination with antispasmodics, should be given, as the mixtures Nos. 43, 44, and the tonics, Nos. 118, 119, or the preparations of steel, as compound steel pills, or mixtures Nos. 128, 129. The shower-bath should be employed, regular exercise taken in the open air, cheerful but not exciting society resorted to, and sleep taken on a mattrass in an airy chamber. In the plethoric, the diet should be spare, and in some cases leeches may be useful. If there be tenderness about the spine, the croton-oil liniment, or dry cupping, should be applied; and in anomalous cases, five or ten grains of assafœtida, made into two pills, may be given every four hours, with the occasional administration of the turpentine and fœtid enema. Of sleeplessness Dr. Graves says, "I have frequently known hysterical females, or those of nervous habit, who possessed strong feelings of attachment to the welfare of their families, complain of total privation of their natural rest for a length of time, without being otherwise ill: these cases are not relieved by opium or other narcotics, but are by antispasmodics, and remedies which have a gentle stimulant effect, as a grain of musk two or three times a-day, alone or combined with two or three grains of assafœtida: indeed the assafœtida by itself is an excellent calmative." So powerful is the operation of moral impressions in these cases, that sleep should not be spoken of, but great stress laid on the patient being awakened to take the pill every three hours during the night. Dr. Graves relates a case where the idea which had hitherto fixedly occupied the mind was displaced by the new impression, and relief was obtained the very first night. Where headache prevails, dry cupping at the back of the neck, or between the shoulders, is eminently beneficial: the glasses should remain on fifteen minutes.

As to the simulated diseases of hysteria, if the patient be a young woman having some irregularity of the uterine functions, who has been before affected with hysterics, or who is subject to flatulence, rumbling noise in the bowels, and choking from the sensation of a ball rising in the throat; if, with the apparent organic diseases there is no corresponding expression in the appearance of emaciation or otherwise; if the pain of the part is increased by the gentlest touch, as slightly brushing or pinching the skin, or extends to other distant parts; and if the symptoms of inflammation arise or subside suddenly without any obvious cause, the disorder is most likely hysterical. In real disease there is generally a connection in the train of symptoms; but simulated disorders are mostly irregular, inconsistent, and contradictory: where, however, after careful enquiry, there remains a doubt, the patient's health may suffer less eventually from being treated for the assumed disease, than from neglecting it altogether. In the treatment of the simulated maladies, great firmness should be combined with kindness; but dashing with cold water is the sovereign remedy. If mental influence, either of excitement or depression, connected with the affections, occasion hysteria, excitement of another kind has been found one of the best counter-agents of the morbid tendency: under these circumstances, marriage, with the new cares and duties which it entails, often cures hysteria. It will be to the purpose to observe that hysteria is very rare in strong-minded females, and is most common in the perverse and irritable, who possess little self-control; that the ordinary mode of bringing-up female children, by combining excessive mental with defective physical education, and thus producing excitement of mind and bodily debility, is sufficient of itself to engender nervous susceptibility, with all its train of distressing consequences.

INFLAMMATION.

For the pathology of inflammation see page 81. It may be general or local: for the treatment of the first, see Fever, page 436; for that of the second, see Abscess, page 226.

INFLUENZA (Epidemic Catarrh).

A peculiar sudden feverish attack with aggravated catarrhal symptoms, accompanied or followed by extreme prostration of strength.

True influenza is a very distinct disease, and rarely or never occurs but as an epidemic, pervading large tracts of country simultaneously. It has also been observed to prevail at the same time, without inter-communication, on land and on board ship. It has been thought contagious, but without sufficient evidence. Its causes are very obscure; the most probable are atmospherical influence, or atmospherical animalculæ. Great vicissitudes of weather usually precede its appearance; but sometimes one and sometimes another condition of the atmosphere has been its immediate forerunner. It frequently falls partially and capriciously as a blight falls upon a field or district. During influenza, animals and birds are very much affected with disease, and on some occasions prodigious swarms of insects make their appearance. Influenza seems to pass from one place to another, irrespective of prevailing winds or variations of temperature,—in certain directions, generally westerly,—its progress very much resembling that of cholera. It usually commences by a few solitary cases before it establishes itself generally, and it is mostly very severe at its onset, gradually abating, and lasting about six weeks.

Symptoms.—Shivering, succeeded by heats coming on suddenly, headache, suffusion and redness of the eyes, dryness of the nose and air-passages, followed by an acrid mucous discharge, tickling cough, very troublesome, particularly at night, occasional difficulty of breathing, wheezing and oppression of the chest, and pains of the limbs generally, especially of the back and loins; these symptoms being accompanied from the first with extreme prostration of strength, and great restlessness and want of sleep. It varies much in its effects in different persons: in some, passing off without any treatment; in others, being a very severe and enfeebling disease, and frequently fatal. Now and then, where patients struggle through it, it will usher in, or lay the foundation of, other serious disorders,—as consumption, &c. To weak and aged persons it is more fatal than formidable disorders of far greater violence. Persons who have disease of the heart or lungs run considerable risk from it.

Treatment.—The characteristic debility forbids all enfeebling remedies, which some of the symptoms might otherwise require. The pulse and heat of skin fluctuate so much as to form no guide. As a general remedy, bloodletting is inadmissible; and in those cases which appear very severe from extreme difficulty of breathing, the greatest caution is required. The more advisable treatment is first to open the bowels by some mild aperient, such as rhubarb and magnesia, or the compound senna mixture, or solution of Epsom salts ; afterwards to confine the patient to bed, and give the saline mixture No. 111, with antimonial wine, every four hours, or to add to a pint of weak wine-whey one grain of tartar emetic and one drachm of nitre, and give a wineglassful every four or six hours, the patient sipping frequently mild diluent drinks. When the difficulty of breathing and irritation of the throat is very severe, eight or ten leeches may be applied to the hollow at the lower part of the neck, just above the breast-bone, and if applied in the evening they will often secure the patient a good night. "This is an excellent plan in inflammation of the windpipe. The leeches are applied to a spot close to the trachea, and particularly to that point where the irritation accompanying bronchitic affections is chiefly referred" (Graves). Mustard poultices and stimulating liniments should be used to the chest; but blisters are more equivocal remedies, and rather add to the sufferings and increase the debility : fomenting the chest and throat with very hot water appears to be much more serviceable ; and inhaling the steam of hot water, with a scruple of powdered hemlock, or one drachm of tincture of henbane, on the top of the water, is very tranquillising. After the fever has subsided, an anodyne at night will be beneficial ; as 5 grains of Dover's powder, or a dose of the solution of morphia ; and for the cough, stimulating expectorants will be useful, as squill, or polygala senega (Nos. 76, 92) ; and where the patient is much enfeebled, tonics should be given, —as infusion of calumba or cascarilla, combined with ammonia (Nos. 118, 119). The diet should be mildly nutritious throughout,—such as broths, arrow-root, sago, and jelly, with a portion of wine. After all other symptoms have disappeared, the cough sometimes will resist every kind of remedy except change of air, which in all cases is the best restorative.

INOCULATION

Is the introduction of a poison through a wound into every part of the body. It was first practised with that of the small-pox. It was ascertained that a milder disease, with fewer pustules, was thus produced than when the small-pox was taken in the natural way, when the individual was unprepared for it. The same term applies to the introduction of the poison of cow-pox; but to the latter, by way of distinction, the term vaccination is used.

INSANITY, MADNESS, UNSOUNDNESS OF MIND.

The several varieties of insanity may be included under the four following heads:—

1. *Moral insanity* or *madness* consists in a morbid perversion of the feelings, inclinations, temper, and natural impulses, without any remarkable disorder of the intellect, or knowing and reasoning faculties; and particularly without any insane illusion or hallucination.

2. *Intellectual insanity* may be general, or merely *mono mania* or partial insanity, in which the understanding is under the influence of some particular illusion on one subject, while on other subjects it is unimpaired.

3. *Mania*, or *raving madness*, is when the understanding is generally deranged, the reasoning faculty being either lost or confused or disturbed in its exercise, and the mind in a state of morbid excitement, the individual talking absurdly on every subject to which his thoughts are for the time directed.

4. *Incoherence* or *dementia* (infatuation) is characterised by a rapid succession, or uninterrupted alternation, of unconnected ideas and emotions, continually repeated acts of extravagance, complete forgetfulness, diminished sensibility to external impressions, loss of the power of judgment, and perpetual restlessness.

The main character of insanity is the existence of delusion—that is, a belief in something which does not exist,—and the acting on such belief. Many persons labouring under delusions may still be adequate to fulfil their social duties; and as long as the delusions do not tend to the injury of themselves or others it may not be necessary to interfere with them. Insanity makes its approaches sometimes suddenly, at others slowly and insidiously. In most cases there is some preceding disorder; the general health is deranged, the appetite fails, the sleep is disturbed, the bowels are irregular, mostly constipated; and the individual is unusually irritable and his mind excited, which he perhaps conceals or controls. In other cases there are whimsicalities and fluctuation of spirits, which, although observed, are too slight to excite apprehension. There is often pain in the head, failure of the memory, and a consciousness of loss of mental power and change of character. At length, some exciting circumstance, in itself of no importance, brings on a decided attack of mania.

Wherever the foregoing symptoms occur, particularly with a predisposition to the malady, the patient should be kept from anything likely to cause strong mental emotion; the bowels carefully regulated—if very torpid, by the pills Nos. 34, 34*a*, or 35—and medical advice taken under the plea of the bodily ailment.

When insanity is once developed the individual ought never to be kept under domestic management, but be placed under medical superintendence and the care of persons accustomed to manage the insane, and away from his own family.

Itch

Is characterised by an eruption of distinct pale rose-coloured pimples, or of pointed vesicles, with transparent summits, raised slightly above the surface; in severe cases these vesicles enlarge and fill with matter, or are destroyed by friction and leave small red spots; they cause the most distressing itching, which is increased at night and by warmth. The eruption is mostly between the fingers and toes, and at the bend of the joints, but not on the face. It may almost always be traced to infection, and makes its appearance in five or six days after exposure, in children; after ten or twenty days in adults. It is distinguished from other eruptions by its pimply or vesicular form, the intolerable itching, but not smarting, which accompanies it, and its never appearing on the face. Tailors and sempstresses, and persons who work for upholsterers at mattresses, are of all others the most frequently affected by it. It is caused by a minute insect, the acarus scabies.

Treatment.—The most effectual treatment is to cover the whole person with one of the following ointments:—

Take of Sulphur, two ounces; Carbonate of Potash, two drachms; Prepared Lard, four ounces.—Or,

Take of Sulphur, one ounce; Borate of Soda and Muriate of Ammonia, finely powdered, of each one drachm; White Precipitate of Mercury, two scruples; Prepared Lard, two ounces. (Green).

The patient should anoint himself from the nape of the neck to the soles of the feet and ends of the fingers; put on socks, drawers, and dressing-gown, and remain in bed for thirty-six hours, using the ointment twice in the time; then have a warm bath, and free the skin from the ointment by means of soap and flannel.

In milder cases the sulphurous vapour bath may be taken twice in the twenty-four hours, the whole surface being previously washed with soap and water. In obstinate cases, mild alterative aperients and spare diet may be necessary, and the following lotion in addition to the warm bath and soap:—

Take of Sulphate of Potash, four ounces; Sulphuric Acid, half an ounce; Water, a pint and a half.—Mix. (Guy.)

Sponge the surface carefully before the fire. The linen should be carefully changed, and woollen clothes disinfected by exposure to the air, and baking, or fumigating them with the sulphurous acid gas vapour, procured by burning a rag dipped in melted sulphur.

Jaundice.

Jaundice is characterised by a yellowness of the skin, and especially of the tunica conjunctiva of the eyes, a bitter taste in the mouth, a sense of pain or uneasiness in the right hypochondrium, whitish or clay-coloured fæces, and the urine being obscurely red, and tinging things dipped in it of a yellowish colour. It is mostly preceded and accompanied by listlessness, loss of appetite, drowsiness, depression of spirits, costiveness, or sometimes diarrhœa, occasionally itching of the skin, and pain at the pit of the stomach increased after meals.

Causes.—Obstruction to the flow of bile into the intestines and its consequent absorption into the circulation; deficient secretion by the liver, so that the principal or constituent parts of the bile are not separated from the blood; or redundant secretion of bile. Obstruction may be caused by stones in the gall-bladder or duct; by the pressure of tumours of the liver, or of any of the neighbouring viscera; by the pressure of loaded bowels, or of the enlarged womb in the latter months of pregnancy; by spasmodic constriction of the duct from violent passions of the mind; or by diseased liver, in consequence of spirit-drinking. When the disease is protracted, and the colour of the skin very intense and of an olive hue, it is called green jaundice; in more protracted cases, and where the skin is darker, it is called black jaundice; and these cases are associated with diseased liver.

Depression of spirits, anxiety of mind, hot weather, or long residence in a hot climate, have an influence in the production of jaundice. Infants are sometimes born with jaundice, and which, in some instances, they never get rid of; this differs from the slight jaundice which occurs shortly after birth, and which is not usually of any moment. The disease mostly terminates favourably, except when it depends on structural disease of the liver, or is complicated with any severe bodily disease, or is the result of broken-down health from a long course of intemperance.

The Treatment under common circumstances is to be directed to restore the regularity of the digestive organs, by alterative aperients. If there be much nausea, an emetic, No. 107, may be first given, and warm diluent drinks taken freely during its operation, and then a full dose of calomel, as from five to ten grains at bed-time, and in the morning the compound senna mixture No. 20, or an ounce of castor-oil, either of which should be repeated till free action of the bowels is produced. If there be much tenderness on pressure in the region of the liver or pit of the stomach, six leeches may be applied, and on their removal a large hot bran or linseed-meal poultice; afterwards, the pill No. 16, 17, or 18, should be taken every night, or twice or thrice a week, and an occasional aperient in the morning, and the patient should drink freely of barley-water, or toast-water, with a drachm of carbonate of soda in each pint, or a decoction of dandelion root with half a drachm of carbonate of soda added to half a pint, and taken daily in divided doses; subsequently, the mineral acids No. 126 or 127 may be taken, and if the appetite be deficient, combined with a tonic, as mixture No. 124 or 124*a*. With these medicines, active exercise in the open air, as riding—which is the best—boating and rowing. The Cheltenham tonic aperient waters may be had recourse to, and a light diet with animal food, and weak brandy or gin-and-water adopted.

In all varieties of jaundice, rubbing the side with some stimulating liniment, shampooing, and the use of the tepid bath, are advisable. For jaundice during pregnancy, mild aperients are the most appropriate, as the above-mentioned rhubarb and soap pill, and the solution of carbonate of soda: an old and popular remedy is, a raw egg beaten up and taken early in the morning. For infants, from half a grain to a grain of grey powder (mercury with chalk) should be given every night, and in the morning a tea-spoonful, or half that quantity, of the carminative mixture No. 61, or castor-oil, should be given.

Gall-stones.—The pain that attends the passage of a gall-stone is most excruciating, as may be readily conceived, when a substance the size of a walnut has to pass through a duct not larger than a goose-quill. It is usually attended with nausea and vomiting, and the patient is quite prostrated; the pain occurs only at intervals, which are sometimes considerable, till at length it suddenly ceases, and the patient recovers. After the passage of a gall-stone, it is well to examine the dejections, as the patient will be much gratified by seeing that the enemy has been expelled. When a large gall-stone has passed, the channel remains permanently dilated, and smaller stones may pass without being noticed. Some persons have passed many hundreds in this way. Gall-stones consist of inspissated bile, and will be found floating on the water of the evacuations. They are seldom met with in children, and are more common in women than in men; their formation is promoted by sedentary occupations, full living, and constipated bowels.

Where gall-stones are attended with violent occasional pain in their passage, the patient should drink freely of hot water with two drachms of carbonate of soda or potash dissolved in each quart during the nausea and vomiting. Opium may be taken in one-grain doses in the solid form, and washed down with half drachm doses of sulphuric ether in camphor mixture, every three or four hours till the acute pain is relieved. Blood may drawn from the seat of pain by leeches or cupping in those of full habit, and a large hot bran or linseed-meal poultice applied. Dry cupping only should be used with the feeble. The warm bath should be tried, and the following pills given:—

Take of powdered Rhubarb and Castile Soap, of each half a drachm, powdered Ginger one scruple. Mix, and divide into twelve pills—one to be taken in the early morning, a second immediately before dinner, and a third at bed-time;

so as to keep the bowels in an open state, but not more. Patients suffering from gall-stones should always be prepared with a one-grain opium pill, and a draught of sulphuric ether and camphor, and should resort occasionally to the hot bath.

Kidney, Diseases of.

Diseases of the kidney are so often blended with diseases of the bladder, and with those of the other urinary organs generally, that it is scarcely possible to distinguish them.

"The worst symptoms of irritable bladder may occur as a consequence of disease of the kidney, the bladder itself and the organs in immediate connection with it having been free from disease in the first instance" (Brodie on the Diseases of the Urinary Organs).

Symptoms.—Pain in the loins, extending to the bladder, and frequently retraction of the testicle and numbness of the inside of the thigh: the pain is deep-seated, acute, or dull, sometimes only felt by pressure, and always increased by it; there is generally nausea, and now and then, vomiting, and a frequent desire to make water, but often without effect, which at length becomes incessant. The urine is often bloody early in the disease, and latterly it is accompanied with a ropy tenacious mucus; the patient becomes feeble and emaciated, the complexion is sallow, or as if the skin were unwashed, the bowels are mostly constipated, with tension and flatulency, and an extreme degree of languor, anxiety, and depression of spirits.

Disease of the kidney is distinguished from lumbago by the pain being confined to one side, and increased by the movement of the limbs, and by being accompanied by numbness of the thigh, and also by nausea and vomiting, and disorder of the urinary system.

Treatment.—Except in very mild cases, diseases of the kidney should always be confided to medical care; where this is not immediately procurable, the treatment recommended for diseases of the bladder and suppression of urine may be had recourse to; in addition to which, a seton or issue in the loins will be useful. As a preventive of the disease, where there is a disposition to it, or where it has before occurred, the individual should live temperately and in a pure air, keep the skin free by regularly sponging with water, succeeded by friction, and occasional tepid bathing, take regular daily exercise in the open air, and live on meat free from fat, and a due portion of well-dressed vegetables, in order to preserve a regular state of bowels; otherwise, mild antacid aperients must be had recourse to.

LARYNGITIS

Is an inflammation of the larynx, and more especially of the mucous membrane that covers the glottis and epiglottis: it is sometimes limited to the larynx, but frequently extends to the tonsils, fauces, and upper part of the throat. It is a disease of a most dangerous character, but fortunately is not very common.

Symptoms.—Fever, harsh cough, an unusual degree of restlessness and anxiety, flushed face, hard pulse, and great difficulty of breathing and swallowing, for which no adequate cause is visible: the breathing is peculiar, and attended with a throttling noise; the inspiration is protracted and wheezing, as if the air was drawn through a dry reed; the pain is referred to the pomum adami, or hard projecting part of the throat, and is greatly increased by pressure; there is hoarseness or loss of voice, and the patient speaks in a whisper by moving the lips and tongue only. As the disease proceeds, the distress increases; the countenance becomes pale, livid, and ghastly, the eyes protrude, the patient makes signs for the admission of more air, and unless relief be afforded, becomes drowsy, delirious, and dies strangled. The effect of inflammation of the mucous membrane is a thickening and swelling, and effusion of serum into the surrounding parts: hence the air-passage is narrowed, and at length closed up: the extreme danger is owing to the situation. The celebrated Washington died of this disease, and also several distinguished medical men.

Treatment.—Early after the attack, sponges wrung out of water as hot as can be borne should be applied for ten or twenty minutes, and they will produce the same degree of redness as a strong mustard poultice (see Croup). This application may be immediately succeeded, if required, by drawing blood by cupping from the nape of the neck, and a blister should be applied on the upper part of the breast-bone, and four grains of calomel, with a quarter of a grain of opium, given every four hours till a surgeon can be procured. In the advanced stage, little can be done by medicine, and an opening must be made in the trachea to enable the patient to breathe: it is running the greatest risk to wait so long that the blood cannot be arterialized. The operation is recommended to be performed with a curved trochar (see Watson's Lectures, p. 825). Closure of the larynx may occur from accidental causes; as swallowing caustic acids, alkalies, or boiling water. If suffocation be threatened, the operation is the only resource.

CHRONIC INFLAMMATION OF THE LARYNX, causing persistent hoarseness and loss of voice, is to be treated by the repeated application of three or four leeches to the upper part of the throat externally, and twice or thrice a week a strong solution of lunar caustic on the internal surface by means of a large hair pencil, and by paying attention at the same time to the general health. If it be of syphilitic origin, it must be treated accordingly.

LEPROSY.

Common leprosy is a scaly eruption on the skin, consisting of circular patches of various sizes raised in the circumference and depressed in the centre: these patches are at first confined to the angles of the elbows and knees, from which they spread to all other parts, except the hands and face. Lepra always extends by several distinct blotches, which rarely exceed the size of a shilling or half-crown, unless when they join together at their margins. When the patches are smooth, white, and of long standing, it is called white leprosy; when copper-coloured and the result of syphilis, syphilitic leprosy. "It is not a contagious disease, but there is no doubt of its being hereditary; it is one of frequent occurrence, though not generally formidable, and may exist in scattered patches for a long time. When the eruption is very copious, and when the whole or greater portion of the body is encased as it were in a suit of scaly armour, the functions of the skin are interrupted in a degree incompatible with health, and the lungs and kidneys are then required to do a double office" (Green). It is a different disease from the leprosy of the Jews and other ancient nations.

Treatment.—It is a very obstinate disease; all local applications, except alkaline or sulphur baths, or warm water baths, are useless. The former are made by dissolving a quarter or half of a pound of carbonate of soda in enough water for a bath, or a quarter of a pound of sulphuret of potash;—either of these should be used twice or thrice a week, or the skin sponged daily with a solution of one of them, changing from one to the other every three or four weeks, and using a tepid water bath once a week. The general health should be attended to: in the plethoric or full habit, a course of saline purgatives may be used, and spare diet allowed; in the feeble, a more generous diet, and perhaps some tonic, may be required; in all, the diet should be simple, and stimulants avoided. For medicine, the solution of potash, or Brandish's alkaline solution, or the alkaline solution with rhubarb (No. 15), in any of the light bitter infusions, or decoction of sarsaparilla or dulcamara. If these fail, the arsenical solution; but this should only be given under medical superintendence, which must be resorted to also when the disease is of syphilitic origin and requires an alterative course of mercury. The Harrowgate waters will be useful, taken at the place itself. Dr. Kingslake says, "Several cases which had resisted every other treatment were cured by taking ten drops of sulphuric acid three times a day in half a pint of water, and bathing the parts with a solution of half a drachm of the acid in a pint of water." (Med. and Phys. Journ. vol. iv. p. 428.)

LIVER, DISEASES OF.

The liver is subject to various forms of disease, but is not so frequently in fault as is usually imagined. The researches of Mr. Kiernan and Dr. Budd have thrown great light on the nature of these diseases. Inflammation of the liver may be either acute or chronic; both forms are rare in this climate, but are common in tropical ones. Acute inflammation is characterised by fever, with pain and tension over the right side (hypochondrium), and inability to lie on the left; difficulty of breathing, a dry cough, vomiting, and hiccup; a yellow tinge of the skin and white of the eye; and sometimes jaundice. The pain in some cases is sharp and pricking, in others, dull and obscure: in the former the surface, in the latter the substance, is thought to be affected. The pain extends commonly to the right shoulder; sometimes to the left, when the disease is more extensive on that side; when the under surface is affected, there is usually pain at the pit of the stomach, extending to the back, and nausea and vomiting. Accordingly as the pain is differently situated, one or other of the organs in the vicinity are more or less affected; as the stomach, heart, or kidneys. Inflammation of the liver may terminate in resolution, or in abscess: in the latter case, the matter may make its way to the external surface (Graves, Cl. Lect. vol. ii. p. 248), or into the lungs, the stomach, the bowels, or the abdominal cavity. On some occasions, hydatids form in the liver, and escape in a similar manner (Watson's Lectures, vol. ii. p. 539). The formation of matter is usually preceded by rigor, and followed by diminution of pain. The discrimination of inflammation of the liver is difficult: it is chiefly marked by pains in the shoulder, the pain over the liver being increased by pressure, the discolouration of the skin, and the ability to lie better on the affected side than on the other—which distinguishes it from pneumonia. The sharp pain on the right side, with feverishness, denotes pleurisy more frequently than inflammation of the liver. The termination of the disorder is commonly favourable; but the formation of abscess renders it much more hazardous, but not necessarily fatal, provided the matter makes its way to the surface, or into the alimentary canal.

Causes.—External injury, intense heat, exposure to cold in hot climates, and intemperance in the use of spirituous liquors.

Treatment.—Active depletory measures, to prevent the formation of abscess; severe cases should not be confined to domestic practice. Blood ought to be taken by cupping or leeching, followed by the application of large bran poultices, and afterwards by a blister, which may require to be repeated once or twice: free purgation should be effected by three or five grains of calomel and the compound senna mixture No. 20, followed by small doses of Epsom salts, and the saline mixture No. 111 and 112, with antimonial wine and colchicum. When the violence of the pain has subsided, small doses of calomel, as one grain with a quarter of a grain of opium, may be given every four hours. When there is reason to believe that suppuration has taken place, nourishing food and tonics, with mineral acids (Mixture, Nos. 126, 127), will be most appropriate; the bowels being regulated with the compound rhubarb pill (Nos. 42, 42*a*, 42*b*) [See Jaundice, Dyspepsia, Bilious Complaints.]

CHRONIC INFLAMMATION OF THE LIVER is attended by the same symptoms as the acute form, but in a minor degree, and may arise from the same causes, or be the sequel or consequence of the acute disease. It is not unfrequently the accompaniment of some specific disease of the liver; as scrofulous tubercles, hydatids, fatty degeneration, hobnail, lumpy, or gin-drinker's liver, so called, &c. The precise distinction of any one of these is exceedingly obscure: the symptoms point out the situation of the disease, but its exact nature must be left to conjecture. The liver in some cases is greatly enlarged, in others much diminished in size; the latter, or shrivelled liver, is more frequently attended with abdominal dropsy. Chronic disease is always accompanied by great languor, lassitude, extreme depression of spirits, and hypochondriasis; usually the complexion is sallow, the body emaciated.

Treatment.—Local pains may be relieved by leeching, dry cupping, repeated blisters, alterative doses of mercurial pill, as No. 18, and saline purgatives, as Epsom salts, two, three, or four drachms every morning, or Mixtures No. 23 or 26; a sojourn at Cheltenham, and a regular course of the waters, with moderate exercise in the open air, tepid bathing, and change of scene, are particularly appropriate. The nitro-muriatic-acid bath, shampooing, and a course of dandelion (No. 124), are advisable in protracted cases.

MEASLES

Is a contagious eruptive disease.

Symptoms.—Measles commence with the ordinary signs of catarrhal fever; which are, shivering, succeeded by heat of skin, thirst, and languor. As the disease proceeds, dry cough, sneezing, running from the nose, suffused and watery eyes, intolerance of light, successive heats and chills, swollen face, and quick pulse, follow. These symptoms occur with greater or less severity; sometimes they are mild, so as to be scarcely noticeable: about the end of the third day, sometimes later, a dusky-red eruption appears (now and then preceded by vomiting or a slight convulsion), first on the forehead and face, and gradually extending over the whole surface: on its appearance it is scarcely characteristic, but after a few hours it will be observed in groups of crescent-shaped spots slightly elevated above the surface, the intermediate skin being of its natural colour. At the end of the sixth day (the third of the eruption), it gradually fades and disappears, followed by a scurfy desquamation of the cuticle, accompanied with itching; on the subsidence of the eruption, the febrile symptoms diminish, but the cough is not unfrequently aggravated. The eruption is the distinguishing characteristic of measles, the catarrhal affection the most important symptom. Measles usually occur about fourteen days after exposure to the infection, the interval being called the period of incubation; and it is not unusual, where there are two or three children, for a fortnight to intervene between the attacks. Simple measles may be a mild disease, but is often rendered dangerous by complication with others, as those of the air-passages, chest, and bowels, and frequently calls into action consumption and scrofula in habits where there is a tendency to them.

Treatment.—Little more is required than diluent drinks, a spare diet, and a moderately warm and well-ventilated apartment; the bowels may be kept regular, but not purged, by roasted apples or any light fruit or mild aperient, or the following saline mixture:—

> Take of Sulphate of Magnesia, three drachms; Solution of Acetate of Ammonia, one ounce; Ipecacuanha Wine, Sweet Spirits of Nitre, of each one drachm; Syrup of Poppies, two drachms; Cinnamon Water, one ounce; Water sufficient to make four ounces. Mix. A table or dessert-spoonful to be taken three or four times a day.

Where there is much heat on the surface, it will be relieved by sponging with tepid water and vinegar, which will also tend to allay the itching; after the subsidence of the eruption, a tepid bath after a few days will favour the desquamation of the cuticle. For the cough, the Mixtures Nos. 75, 80-86, will be serviceable. On the third or fourth day after the retirement of the eruption, an aperient should be given,—as calomel with rhubarb, or compound powder of jalap, or scammony, and the patient should be protected against sudden changes in the weather, and adopt a regular and moderately nourishing diet for some time. Should the eruption disappear suddenly, the patient should have a partial warm bath (up to the middle), and warm diluent drinks, or some white-wine-whey should be given; for those in a feeble state, from one to five grains of the sesquicarbonate of ammonia, with a drop of laudanum in half an ounce of almond emulsion, or camphor mixture, every four hours, or the Mixture No. 103, will be appropriate. Measles are usually a disease of childhood, and affect the same individual once only; but there is a variety of measles unattended by catarrhal fever which may occur once or twice before or after the regular measles; it is not infectious; diluent drinks and spare diet are the remedies. The state of the chest, the head, and the bowels, should be watched on the decline of measles; and in the event of any disorder of those organs arising, they must be treated by the means prescribed for pneumonia, hydrocephalus, diarrhœa, &c.

MALIGNANT MEASLES is mentioned as a variety ushered in by severe symptoms, in which the rash assumes a dark livid hue, alternately receding and appearing, mixed up with petechiæ, dark red spots like flea-bites, and accompanied by extreme debility and other symptoms of putrid fever: it should be treated in a similar manner, and medical aid should be obtained without delay.

MENSTRUATION, IRREGULARITIES, ETC., OF.

Menstruation is a monthly secretion from the womb of women, resembling blood in colour, but it does not coagulate, nor does it readily putrify (see p. 50 and 51). The period of its first appearance is usually between the fourteenth and the sixteenth year of age. It is somewhat irregular in its recurrence at first; but after a time it takes place at regular periods, ordinarily once in a lunar month or twenty-eight days. In some few females it recurs every third week, with equal regularity. The quantity of fluid discharged is three, four, or five ounces, the process continuing from three to five days. It indicates that the womb is fitted for conception, and the girl is said to have arrived at the age of puberty. The quantity of the secretion and length of the process varies in different women, and does not seem important; but the regularity in the period of its recurrence appears of great consequence, and its partial or entire suppression often induces serious, and sometimes fatal, maladies. Menstruation commences in different females at different ages, varying from eleven to twenty years, depending in some measure on climate and habits of life. If they are otherwise in good health, they ought not to be medicinally interfered with on account of its late appearance. There are, indeed, instances where women have borne children who have never menstruated. The accession is usually, and the subsequent periods are often, accompanied by some little disturbance in the system; there is generally an increased susceptibility to impressions, and in those so disposed, to hysterical affections also. Mothers should apprise their daughters, when they attain a certain age, of what is likely to take place, so that they may not suffer from mental agitation or alarm on the first occurrence of menstruation, or expose themselves to cold or fatigue, or the misuse of active purgatives. When menstruation does not take place, discharges of blood will sometimes occur from other parts, as from the nose, mouth, gums, stomach and bowels; and, it is said, a fluid resembling the menstruous fluid from ulcers and other parts: this is called vicarious menstruation. A similar efflux of blood or menstruous discharge will happen at the time of the cessation of the menses.—(Churchill on Diseases of Females.) These irregular discharges are not followed by any serious result, unless the loss of blood be great, when they are to be treated as hæmorrhage from those parts under other circumstances. Menstruation being established, the term "unwell," or "being irregular," is generally applied to it, and its recurrence is expected at the proper period, when not interrupted by pregnancy, suckling, or disease.

AMENORRHŒA, OR SUPPRESSION OF THE MENSES, may be in consequence of structural deficiency, or some mechanical obstacle. In the first case, the body may be otherwise well developed, but the girl does not menstruate; in the other, the secretion may take place, distending the womb, but be retained there from some obstruction which will require surgical aid.

SIMPLE OR ACUTE SUPPRESSION is where the secretion has taken place, but its appearance is arrested from some adventitious cause or derangement of the general health.

Symptoms.—Oppression, headache, pain in the back and loins, extending down the thighs, and mostly torpid bowels, these symptoms being aggravated and accompanied by shiverings, and some degree of hysteria, at the return of each menstrual period. In those of full habit, the headache is acute, the face flushed, the pulse full and bumping. In the delicate, or those of spare habit, there is sick headache, pale visage, feeble pulse, and extreme languor.

Treatment.—In the female of full habit, the system is to be reduced by spare diet, free purgation by saline aperients (Nos. 11, 23, 23*a*, or 38), and in some cases taking away blood from the loins by cupping, and vigorous exercise in proportion to the strength during the interval between the periods. In one of spare habit and delicate frame, the system must be strengthened by nutritious diet, the moderate use of wine, exercise short of fatigue, riding rather than walking, and the administration of tonics (Nos. 118, 119, 124), and preparations of iron (No. 128, 129), the bowels being regulated by mild aperients, as castor oil (No. 31*a*), and the compound rhubarb pills (No. 42*b*). Having brought down the system of the one patient, and raised up that of the other to the standard of health, three days before the arrival of the menstruating period, one, two, or three leeches, as the individual is of feeble or full habit, are to be applied to the upper part of each thigh, close to the external parts, every other night for three nights, and followed by the use of the hip bath; on the intermediate night the hip bath with mustard in it should be used for a quarter of an hour, followed by active friction with dry coarse towels on leaving the bath, and an aloetic pill given daily, or on the alternate days a lavement with two drachms of spirits of turpentine. If these means fail, they must for the time be laid aside, and the constitutional treatment be again resumed, until a few days before the next following catamenial period, when they may again be had recourse to, assisted by emmenagogues (see Chronic Suppression).

Sudden suppression at the period, from exposure to cold or wet, extreme mental distress, or other adventitious causes, is mostly attended with violent headache, ardent fever, severe pain of the abdomen and loins (increased on pressure), difficulty of breathing, and shivering fits. This must be treated in those of full habit by the application of leeches to the part in pain, in all by opening the bowels freely with the mixture No. 21, by using the warm bath at 96°, or, if this be not available, by immersing the feet and legs in a hot bath with mustard, and applying a large hot bran poultice, or flannels wrung out of hot water, to the abdomen and over the pudenda: the patient should be confined to bed, sip freely of diluent drinks, and take the saline mixture No. 111, or if there be much pain, No. 113, every four hours: an opiate lavement, with two drachms of spirits of turpentine, will be beneficial also.

Chronic suppression may be the result of the acute suppression, or may arise from the supervention of delicate health, defective nutrition of the internal organs, the early termination of the menstrual function, or profuse discharge of whites from the womb. The general symptoms are pain of the head, sides, and back, giddiness, deficient appetite, failure of the general health, sallow complexion, dark hue under the eyes, and mostly torpid bowels and dyspepsia. It is important to distinguish this state from early pregnancy: in the one, there is a pale visage, deficient appetite, and flat breasts; in the other, morning sickness, and plump breasts; in both, a large abdomen. Where there is any doubt, a few months will remove it.

Treatment.—If there is any disorder present, such must first be remedied, and then, should menstruation not return, and the patient be of an age to warrant such an expectation of it, emmenagogue remedies may be resorted to; otherwise it will be most useless and pernicious to employ them. "It is not right to regard every menstrual suspension as justifying medical interference; provided the healthbe otherwise good, the case may be fairly left to nature."—(Dr. Ashwell.)

The health being established, immediately before the period of menstruation arrives, the warm hip-bath should be used every night for six nights. and one of the following pills taken three times a day:—

Take of fresh-powdered Ergot of Rye, fifty grains; twelve grains of Barbadoes Aloes, and twelve drops of the Essential Oil of Juniper. Mix well and make into twelve pills, with syrup or mucilage, washing each pill down wlth a tea-cupful of fresh-made Pennyroyal Tea, till the time of the period has passed by; or one drachm of the Spirits of Turpentine may be taken in water or Pennyroyal Tea, or made into an emulsion with the yolk of an egg, sugar and water, and taken three times a day for the same time.

On the next occasion, the leeches, &c., as before mentioned, may be had recourse to. If these means fail, they must for the time be laid aside, and the constitutional treatment resumed, and the powers upheld, during the interval, by a well-regulated and nutritious diet, by exercise in the open air,—riding on horseback is to be preferred,—by the use of the shower-bath, or sponging the surface with cold or slightly tepid water, by active friction, particularly about the abdomen, loins, and genital organs, with coarse towels, and by giving a combination of iron with aloes; as:—

> Take of Compound Steel Pill, fifty grains; Compound Aloes Pill, twelve grains. Mix. Divide into twelve pills, two to be taken night and morning, and washed down with a cup of Pennyroyal Tea.

Afterwards, the pills of iron and iodine, No. 131, may be tried, or one ounce of the compound steel mixture No. 128, with half an ounce of the compound decoction of aloes twice a day, or the steel mixture by itself and an aloes pill every night, until two or three days before the next period, when the before-mentioned means are to be repeated. The periodical measures calculated to determine to the womb being employed at the time that the efforts of nature are directed to the same object, will be more likely to be attended with success.

AMENORRHŒA FROM PROFUSE DISCHARGE OF WHITES (fluor albus, or leucorrhœa) FROM THE WOMB.—There are the usual signs of menstruation followed by the white discharge only, mostly accompanied by uneasy feeling in the region of the genital organs, acute pain at the bottom of the back (over the sacrum), vertigo, and hysteria. It often appears in young women before the accession of the menses, and in elderly ones at the time of the cessation; it may supervene on common or vaginal fluor albus, frequent miscarriages, child-bearing, or inflammation of the womb. It appears to arise from a want of energy in the uterine vessels to secrete the red discharges.

Treatment.—Tepid hip-baths and injection of tepid water, dry cupping or repeated small blisters over the sacrum, the exhibition of the steel and aloes pills before mentioned, or the balsam copaiba, in doses of from ten to twenty drops three times a day, or a scruple or half a drachm of powdered cubebs thrice a day in milk; generous diet, carriage exercise, very moderate walking, and observing the recumbent posture at intervals during the day, and keeping the bowels regular. Should the form of suppression occur in a female of full habit and florid complexion, it may be advisable that the blisters should be preceded by the application of six or ten leeches over the sacrum, and the diet restricted; if she be married, a separate bed should be enjoined till two or three periods are passed over.

Painful menstruation.—Severe pain attending the secretion and emission of the discharge. The quantity is not materially influenced, but perhaps is less abundant than usual; it is mostly accompanied with pieces of membrane, and sometimes a membranous cast of the cavity of the womb will be expelled. Painful menstruation may exist from its accession, and endure the whole menstrual life; it more commonly comes on later, and usually ceases on marriage, but on some rare occasions it does not commence till then. The pain may be of short duration, going off on the appearance of the discharge, or last the whole period, with occasional emissions, or be throughout so violent as to confine the sufferer to bed during the whole time. The character of the pain varies according as the individual may be of a nervous or of a full and inflammatory temperament. In the former there is a general course of uneasiness, and a chilly feel, for a day or two previous to the period, with headache, and pain round the lower part of the back and abdomen. In those of full and florid appearance, the pain commences without so much warning. The cause is not always discoverable; it may be taking cold during the period, a shock, mental emotions, or an irritable womb.

Treatment.—During the paroxysm, immersion in the hot hip-bath for ten or fifteen minutes, and, on coming out, after being well rubbed, the application of a large bran poultice over the lower part of the abdomen, ten or fifteen grains of Dover's powder given at once, and five grains in a pill every three or four hours, and after each pill a dose of the saline mixture No. 111, till relieved, with warm diluent drinks and a spare diet; in the interval taking active walking out-door exercise, sitting in the tepid hip-bath three nights a week, injecting some of the water high up in the vagina, employing active friction with coarse towels, or a brush, or horse-hair glove round the loins and abdomen, and down the thighs, preserving a regular state of bowels by the pill of aloes with myrrh (or aloetic pill,) and taking half a drachm of the volatile tincture of guaiacum, three times a day, in camphor mixture or water; at the approach of the following period, immersion in the *hot* hip-bath, taking three grains of calomol, combined with one grain of opium, and the morning following half an ounce of castor-oil, or sufficient to cause free action of the bowels; the hot hip-bath being repeated every night, and on the accession of pain; the Dover's powder and saline mixture No. 111 taken as before prescribed. In patients of an inflammatory or full habit, where there is tenderness from pressure on the abdomen, four or five leeches may be applied to each groin, or ten over the sacrum previous to the first hot hip-bath, in other respects the treatment being the same as above; in the intervals the tincture of guaiacum should be repeated, or instead, in a third interval, a course of the fluid extract of sarsaparilla may be tried, or in the next interval, two parts of steel wine and one part of sweet spirits of nitre mixed, and a tea-spoonful taken three times a day in a glass of water, and an occasional blister applied over the sacrum. By pursuing this plan during the intervals and paroxysms for some time, the disorder will mostly be overcome.

PROFUSE MENSTRUATION may consist either in the too frequent return of the menstruating period, or the periods being at the usual time, but the discharge being excessive, or the periods continuing too long; in other cases the discharge being accompanied by clots of blood.

Symptoms.—Extreme languor, indisposition to exertion, pain across the loins, pale countenance, headache, throbbing of the temples, and giddiness; when there is also loss of blood these symptoms are all aggravated, and often followed by anasarca.

Causes.—Over exertion, cold, sitting with the feet over hot water, luxurious living with insufficient exercise, general debility, irritability of the uterine system, frequent miscarriages or child-bearing, and protracted lactation.

Treatment.—In the first variety, where it is *not* accompanied by loss of blood in those of full habit, bleeding from the loins by leeches or cupping, taking saline aperients with sulphuric acid, as No. 38, or the compound infusion of rose or gallic acid mixture No. 59, observing the recumbent posture, abstemious living, all the drinks being cool, sponging the loins and pudenda with vinegar and water, and, after the duration of the period, immersion in the hip-bath, the water at first not being quite cold; during the interval using daily the cold hip-bath of salt and water, injecting some of the fluid into the vagina, sleeping on a firm mattrass, avoiding the exciting cause, and taking tonics with acids, Nos. 124, 125, or ten or fifteen drops of the tincture of muriated iron, three times a day in water, or the mixture No. 129. Where there is also a discharge of clots of blood, the same remedies, with the exception of leeching, should be most scrupulously observed. In delicate women dry cupping may be employed; the patient should be confined to the sofa, and take the pills No. 55, or mixture No. 56 or 59, use cold vaginal injections of half an ounce of alum to a quart of water, three times a day, or a drachm of gallic acid with a drachm of opium, dissolved in a quart of water; have lavements of cold water, or vinegar and water, and apply hot bran poultices to the breasts. In the intervals she should clothe the feet warmly, but not keep too much clothing about the loins, forego napkins, and take carriage exercise, and tonics, particularly preparations of iron, Nos. 128, 129, 129*a*, 129*b*.

CESSATION OF MENSTRUATION, termed by females the turn or change of life, usually takes place between the ages of forty and fifty, sometimes as early as the thirty-second year, and now and then as late as the sixtieth year.

The symptoms will vary according to the constitution of the female; in some it ceases by gradually decreasing in quantity, in others by the intervals being protracted, and in many it is superseded by a white discharge.

In women of average health there is little or no disturbance in the system, beyond what they term an occasional rush to the head, with perhaps a sense of fulness and a temporary vertigo.

Management.—If the bowels be kept regulated, and an abstemious diet observed, in the great majority nothing more is required: for this purpose the pill No. 16 will be useful, or, what is a popular medicine, one ounce of Hicra-picra, or powdered aloes with castella mixed in a pint of gin, which should stand for four or five days, be shaken at intervals, and a table-spoonful taken in a glass of water every morning or second morning, as may be required.

In those of full habit saline aperients are to be preferred, as Nos. 23 or 38, or one ounce of Epsom salts dissolved in half a pint of peppermint water, and two or three table-spoonfuls taken daily; if there be much flatulency or hysteria, the mixtures Nos. 43, 44, or 47 will be useful.

This time is erroneously considered by women as an eventful period in their lives; but fewer women than men die at that age. Women, however, who have been subject to diseases of the genital organs, or of the breasts require more attention, or those diseases may be called again into a state of activity: they will require to be treated according to their nature or seat.

MILK FEVER AND MILK ABSCESS.

About the third day after the birth of a child, the secretion of milk in the breasts of the mother is ushered in, accompanied by some degree of increased heat, preceded by slight shivering, and often, after a first labour, with vertigo and some delirium. If from over-feeding, or any cause obstructing the flow of milk from the nipple, or exposure to cold, or the apartment being over-heated, the foregoing symptoms of heat increase, accompanied by severe headache, thirst, dry tongue, quick pulse, throbbing of the temple, and an intolerance to light, they constitute milk fever.

Treatment.—The bowels should be freely opened by the compound senna mixture No. 20, and afterwards the saline aperient anodyne mixture No. 27 (with half a drachm of laudanum only) should be given, with cooling drinks, and a very spare diet; the utmost tranquillity must be observed, the apartment kept cool and moderately lighted, and the head be somewhat elevated, and bathed with cold or iced water, or the evaporating lotion No. 139. In general, this is all that is required, and the febrile state will be relieved by the flow of milk from the breasts. In more aggravated cases it may be necessary to apply from three to twelve leeches to the head, and immerse the feet in a hot or a mustard bath.

MILK ABSCESS.—As soon as a patient has recovered from the fatigue of labour the infant should be applied to the breast. Immediately after a first confinement, there may be some difficulty in drawing out the nipple, and unless this is done early, and the application persevered in, the difficulty will increase. The breast may be fomented with flannels wrung out of hot water, or a bread and water poultice may be applied, and the breast drawn by some person accustomed to do so: this failing, the nipple may be drawn out by the aid of a heated wine-bottle: one should be selected with a smooth mouth, and first warmed, and then half filled with very hot water, which should be quickly poured out, and the mouth wiped with a cold wet towel and applied over the nipple: as the bottle cools, a vacuum is formed, and by this means the nipple will be drawn out. The infant should then be put to the breast. If from neglecting to relieve the breast in the first instance, or afterwards from cold, sore nipples, or some other cause, the breasts become hard, swollen, hot, and painful, with extreme tenderness to the touch, and a red blush, the application of a dozen leeches at once, followed by a warm poultice to encourage the bleeding, and afterwards the goulard lotion Nos. 142 or 139, keeping the patient quiet in bed, or otherwise, and slinging the breast in a handkerchief, may arrest the further progress of the inflammation; the swelling will gradually recede, and the milk flow from the nipple, and the hardness may be dispersed by the breast being rubbed with a little camphorated oil and soap liniment. The child should then be applied to the breast at moderate intervals, as once in two or three hours. Should this treatment not succeed in preventing the formation of matter, indicated by a continuance of pain, with throbbing, and occasional shivering, a warm poultice, made of equal parts of bread and linseed meal, should be applied over the swelling fresh every six hours, till fluctuation is felt, and then the sooner the matter is let out by the medical attendant the better. The poultices may be continued till the discharge ceases, and the breast should be afterwards supported by strips of soap plaster.

MISCARRIAGE, OR ABORTION,

Is the expulsion of the fœtus from the womb previous to the seventh month of pregnancy before it is capable of living;

if it occur after that time, and previous to the end of the ninth month, it is termed premature labour.

Miscarriage may take place at any period of pregnancy; it is not very common in the earlier weeks, although it is by no means uncommon for women to think that they have miscarried if they are more unwell than usual at a monthly period. From the tenth to the twelfth week of pregnancy is the most common time of its occurrence; nevertheless, if miscarriage has happened at any time from an accidental cause, it is more likely to recur with the same individual when she arrives at the same period of a subsequent pregnancy; and thus a habit or tendency to miscarry is engendered. The proneness of some women to miscarry from the slightest mental accident is very remarkable, whilst in others the progress of pregnancy will not be interrupted from the most violent causes.

The causes are referable to the state of the constitution, the womb, or the ovum. The first may result from weakness, irritability, general fulness, or plethora,—or from an hæmorrhagic disposition, as in those who menstruate very copiously; or from the occurrence of any active disease, as small-pox, scarlatina, violent diarrhœa, or local deragement, as disorders of the womb or the internal or external organs. In consequence of either of these, the ovum may become blighted, and the fœtus die and be cast off, like unripe fruits from a tree.

The occasional exciting causes are excessive exercise of any kind,—dancing, jumping, riding on horseback, or in a rough carriage; or, more frequently, circumstances which make an impression on the mind, as sudden fright, violent passions, or mental emotions.

The threatening symptoms of abortion vary somewhat according to the exciting cause and state of the constitution; they usually commence with shivering and faintness: in the plethoric they are accompanied by fever, in the feeble by languor and depression: these are followed in both by a sense of weight in the lower part of the stomach, dull pain in the loins, passing round to the front, flaccidity of the breasts, cessation of the morning sickness, and some coloured discharge from the vagina. At length the pains become more severe and intermitting, increasing in force and frequency, the discharge is bloody and in larger quantity and these symptoms continue till the whole ovum is expelled, after which both are moderated, the pains decrease, and the red discharge is succeeded by a colourless one. The duration of the process is mostly longer, and the extent of the discharge greater, as the period of pregnancy is more advanced; it is sometimes rendered more tedious in consequence of the rupture of the ovum, and the fœtus coming before the rest of the ovum. Now and then the ovum will come away entire, with very little pain or discharge; at other times there will be a considerable discharge of clots of blood, and it is difficult to discover either fœtus or ovum, which come away in fragments, or piecemeal: the clots should be put in water and carefully examined, as there is no safety or rest, while miscarriage is progressing, till the whole has been expelled.

The Treatment for miscarriage must be directed to its prevention when threatened, and to conducting the patient safely through the process when it has commenced. To counteract the disposition to miscarriage, the rules laid down for the management of pregnancy should be observed, and the exciting causes avoided.

When abortion is threatened from any cause, absolute rest in the recumbent posture on a firm mattress should be immediately had recourse to, and repose and tranquillity observed and persevered in till every symptom disappears: this, with a frugal diet, will often be sufficient to arrest the threatened evil: should the symptoms continue, the medical attendant should be sent for, and, until he arrives, the following means adopted:—If the patient be of a plethoric habit, and experience a sense of fulness, ten or a dozen leeches may be beneficially applied to the lower part of the abdomen or back, and the saline mixture No. 112, or effervescent saline No. 28, given; or, if the bowels be confined, the saline aperient No. 38, assisted by a lavement of cold water. Should neither bleeding nor aperient be required—and it is better to avoid them if possible—a full dose of laudanum may be given, as thirty-five or forty drops in a saline draught, and repeated at intervals in smaller doses, so as to counteract the pain. If there be discharge, napkins wrung out of cold water and vinegar should be applied to the vulva and parts adjacent, and all the articles of diet and drink should be taken in moderate quantity, and cold. To the spare and delicate, the mineral acids, as in the compound infusion of roses, or mixture No. 56, may be given. Where the discharge is profuse in either the plethoric or feeble, the pills No. 55, with a draught of vinegar and water, should be taken, the patient lightly covered, and the room kept cool by a free admission of fresh air. If fainting occur, it may be regarded as a provision of nature to arrest the bleeding; and therefore, unless it proceed to a considerable extent, it is better not to arouse the patient by giving sal-volatile or brandy, as these must be had recourse to only in extreme cases. If the discharge continue very profuse, the vagina may be carefully plugged with pieces of sponge or a silk handkerchief smeared with oil, and passed to the upper part. During miscarriage, a light diet only should be allowed; afterwards the strength may be supported by a more generous one, and convalescence assisted by light tonics with the mineral acids, as the mixtures Nos. 124 and 125, and exercise gradually resumed. In order to prevent a recurrence in a subsequent pregnancy, the general health should be carefully attended to, by a nutritious diet, with regulated exercise, sea-bathing, and the use of the hip- or sponge-bath.

"Sanguine, robust women, who are liable to miscarry at a certain time of pregnancy, ought always to be bled a few days before that period arrives" (Buchan).

Mortification; Gangrene.

The death of one portion of the body while the rest remains alive. The terms Gangrene and Mortification are often used synonymously, but gangrene properly signifies the state which immediately precedes mortification or absolute death of the part (see p. 84). "Parts may die from exhaustion produced by inflammation; they may die from mere weakness, mere want of circulation; and from a great variety of causes" (Abernethy).

The ordinary causes of mortification are inflammation, particularly the erysipelatous; severe mechanical injury, intense cold, poisonous food, and specific contagion.

When gangrene is the result of inflammation, the pain attending it is very severe and constant, with swelling; there is a cessation of the inflammatory symptoms; the part, before tense, becomes flaccid, and of a livid brownish colour;

it loses its heat, the cuticle is raised in blisters, from under which a bloody serum exudes, and the part becomes black, putrid, dead (mortified), and disorganised; the living system must therefore either cast it off, or sink from the effects of the absorption of the putrid matter. The constitution is affected by a high degree of irritative fever, the pulse is rapid and feeble, a great depression of the vital powers ensues, the countenance is cadaverous, and the surface covered by a cold sweat, and there is often delirium and hiccup.

When very severe cold is applied to a part, it becomes benumbed, and its nervous powers diminished; thus enfeebled, it will bear a very slight degree of inflammation, gangrene will be produced, and the destruction of its life will follow. In this climate this result is not so common.

Dry gangrene from old age usually commences by the appearance of a pimple or black spot on the under surface of one of the toes, which gradually extends up the limb. It is sometimes attended with great pain and constitutional disturbance, proving rapidly fatal; at other times it is slower in its progress, and unaccompanied by pain or general derangement, but is equally fatal in its issue.

Treatment.—In order to prevent the threatened mortification during the state of increased action, soothing applications should be made to the part by warm emollient poultices made of bread and milk, linseed meal, scalded bran, turnips, or carrots, renewed every three or four hours; at each renewal the inflamed parts should be well fomented with flannels wrung out of hot decoction of poppies or hemlock, or henbane; these are more readily prepared by dissolving a drachm of either extract in a quart of boiling water. To remove the defective secretions from the bowels, two or three grains of calomel should be given, and the system kept tranquillised by the mixture No. 27, omitting the Epsom salts if it should purge. "The best means of preventing gangrene is to restore the secretions by calomel, to diminish the irritability by opium, and in some cases to take away a very small quantity of blood" (Cooper). If mortification is threatened from cold, the treatment must be different. "The part may be very gently rubbed with camphorated spirits of wine, and when the first effect of cold is removed cold poultices may be applied" (Cooper). "Cold or frost-bitten parts should be bathed with very cold water, or rubbed with snow, till the circulation is restored, and even afterwards cold water should be applied for some time, so that the natural heat may be recovered very slowly" (South). When mortification has commenced, poultices of stale beer grounds and linseed meal, or of port wine, (Cooper), should be applied to the part, which may be bathed intermediately with camphorated spirit of wine, or a lotion of half an ounce of the solution of chloride of soda, mixed with half a pint of warm water. The constitution must be supported by a generous diet, and wine, and by taking from five to ten grains of the carbonate of ammonia with ten or fifteen drops of laudanum in any aromatic water every four, five, or six hours, as also bark and quinine in such doses as will agree with the stomach.

MUMPS.

Inflammation and swelling of the parotid and the other salivary glands. The swelling extends from beneath the ear along the neck to the chin, and the swollen parts are hot, tender, and painful; there is usually some little fever, and the motion of the lower jaw is interfered with. The disease reaches its height in about four days, and then gradually declines, its duration being on an average from eight to ten days. Occasionally, on the subsidence of the swelling in the neck, the testicles in the male, and the breasts in the female, become swollen, and in some rare instances, when the swelling ceases in the latter parts, the brain becomes affected. The disease is mostly confined to young persons, and is contagious; when one in a family or a school is attacked, the others usually suffering. In general the disease is without danger, and rarely calls for medical aid.

The Treatment consists in the exhibition of mild aperients and diaphoretics, as mixtures Nos. 23, 27, 111; the application of hot fomentations to the swollen parts, or wrapping the throat in flannel; and in avoiding all repellent cold applications. Suppuration does now and then occur in the tissues about the neck, for which fomentations and poultices are the appropriate remedies.

NERVOUS DISEASES.

Of all diseases, the nervous are the most complicated and difficult to cure. A volume would not be sufficient to point out their various appearances. They imitate almost every disease, and are seldom alike in two different persons, or even in the same person at different times. Proteus-like, they are continually changing shape: and upon every fresh attack the patient thinks he feels symptoms which he never experienced before. They affect both mind and body. The low spirits, timorousness, melancholy, and fickleness of temper, which generally attend nervous disorders, induce many to believe that they are entirely diseases of the mind; but this change of temper is rather a consequence, than the cause of nervous diseases.

"The nervous system (see p. 85) is the medium through which we hold communion with the world around us,—the stage on which all the phenomena of life are transacted, the instrument of the mind" (Watson). Individuals are endowed with nervous sensibility in different degrees,—women in a much greater degree than men; they are consequently much more susceptible to impressions made on the brain. This susceptibility constitutes what is termed the nervous temperament (see p. 55): it may be natural, or acquired by education, and it renders its possessor more liable to nervous disorders. In proportion to the increased exercise of the intellectual faculties, and the progress made in the luxury and refinement of civilised life, the causes of nervous excitement become multiplied, and a high degree of sensibility is engendered, which, while it enhances many of the enjoyments of life, at the same time predisposes to numerous diseases, from which the uncultivated, and the labouring man occupied in the daily routine of mechanical employment, are exempt. The prejudicial effects of the cultivation of the mental faculties in a degree disproportioned to the exercise of the bodily powers are more evident after the age of puberty, and during the succeeding years of life, when the mental powers are more directly called into action. Causes acting directly on the brain through the medium of the mind or senses have the chief share in the production of nervous diseases; hence men, as life advances, become subject to them in consequence of exposure to numerous sources of cerebral excitement, in the worry and turmoil of the world. In nervous diseases there is usually great susceptibility to external influences; and at the same time mental emotions, whether of joy or grief, and whether excited by real or imaginary circumstances, exert considerable power over the body and its functions. The heart palpitates, the hand trembles, and the face flushes from the most trivial excitement: much of this may be the consequence of constitutional timidity, and is obviously increased by enfeebled states of the system, and those, not heretofore considered nervous, are apt to become so under particular conditions of impaired health. The local irritations which most frequently excite nervous disorders are those of the mucous membrane of the alimentary canal, and those of the skin. Increased sensibility of the surface often occurs as a nervous affection, although the sense of touch, as referred to the fingers, is not often impaired. Erroneous perceptions of existing impressions are of frequent occurrence, particularly of sounds, common sounds appearing painfully loud. Persons suffering from various nervous disorders are rarely affected by serious organic disease, very often escape epidemic complaints, and frequently live to an advanced age, retaining an appearance of health, although they are greatly disturbed by atmospherical changes. The effect of a change of the wind from the west or south to the east and north-east, and of the temperature and density of the atmosphere, on some nervous persons, is very remarkable. Asthmatics will frequently prognosticate from their feelings that a change of the weather is about to take place some days before its occurrence, when there is no other indication of it. Individuals who have lost a limb will do the same from spasm of the muscles that have been divided, which also gives them the impression of the amputated limb being still on. An unfavourable change in the weather will often induce a paroxysm in epileptics. Some individuals are so susceptible to external impressions, as to be aware of the presence of a cat (to which animal they have a great dislike) although they do not see it. Others are so sensible to particular odours, as to be affected with vomiting on smelling ipecacuanha, or purged on smelling jalap.

A most important circumstance in nervous disorders, and which, therefore, merits particular attention, is the remarkable similarity they bear to other and more dangerous diseases, and even to death itself, and the great consequent injury done to the patient by mistaking their true nature. "Limbs have been amputated where no organic disease has existed" (Laycock). The parts most frequently affected are one of the larger joints, the back, the breasts, and some part of the abdomen. Rigid muscular contractions will often bear handling without causing pain, provided the attention be called off at the time: this is also the case during sleep, when the symptoms depending on nervous excitement are necessarily absent.

Nervous diseases for the most part are not attended with serious consequences; they vary greatly in their symptoms, progress, and duration. Some are productive of much suffering, while others are felt merely as an inconvenience. In some cases the symptoms frequently shift their situation, affecting various parts simultaneously or in succession; in others, they are concentrated in one particular part.

Treatment.—Although nervous diseases may generally be relieved, they sometimes resist all the efforts of art, and either cease spontaneously, or become merged in some other disease. Whatever the producing cause may be, whether too great mental exertion, sedentary employment, or excess of any kind, it must be foregone or modified. The force of habit which tends to keep up the disease must be counteracted, and those means adopted which invigorate the general health. The diet should for the most part be solid, nourishing, and easy of digestion; taken at regular intervals, three, or at most four times, during the day, in such quantities only as the appetite demands, and of such quality as is known to agree with the stomach. Vigorous exercise, which is superior to all other things, should be taken to the extent of the bodily powers in the open air; it occupies the attention, keeps the skin permeable, helps the digestion, and strengthens the frame. The tepid or cold shower bath, or douche bath, or sponging the surface, followed by active friction, will be beneficial; the bowels, if costive, should be carefully regulated by mild aperients, such as castor oil, or the powder No. 38, or the pill 42, 42*a*: the habitual use of active purgatives or mercurials is prejudicial. Temporary relief from nervous sensations is sometimes afforded by spirituous stimulants and opium, but their habitual use is followed by the most pernicious consequences. "Change of situation, cheerful society, mental and bodily occupation short of fatigue, will do more than any other means in effecting a permanent cure" (E. Lee). A long journey or sea-voyage is to be highly recommended, as tending to relax the mind and break the chain of prejudical occupation. For the symptoms and treatment of special nervous diseases, see Hysteria, Epilepsy, Hypochondriasis, Dyspepsia, &c.

NETTLE RASH.

An eruption on the skin, similar to that produced by the sting of nettles, consisting of red and white oblong wheals or solid eminences, with heat and a burning or tingling sensation in the spots, and great itching and irritation.

There are two varieties,—the acute and the chronic. The acute runs a short rapid course, mostly attended with feverishness, and soon subsides: the chronic is either persistent or intermittent, and very obstinate. In most cases the disease is caused by some disorder of the digestive organs, and may often be traced to some particular kinds of food,—as shell-fish, particularly crabs and mussels, and sometimes mackarel, oatmeal, mushrooms, raw cucumbers, bitter almonds, and some species of strawberries; and certain medicinal substances, as turpentine (during the painting of a house), copaiba, cubebs, valerian, &c.

Treatment.—In the acute or febrile forms, where it is caused by something recently taken into the stomach, an emetic, No. 107, followed by an aperient, as the compound senna mixture No. 20, or the saline aperient No. 30, should be given. In the chronic form endeavour should be made to discover on which of the articles of diet it depends, by omitting them one by one; and when it is found out it should be left off: otherwise the state of the digestive organs must be corrected, by observing a simple diet, taking active exercise, and preserving a regular state of bowels by means of aperients combined with antacids, as the powder No. 31*a*, or the mixture No. 23; or two, three, or four grains of rhubarb taken before each meal may have an excellent effect, and may be either chewed and swallowed with the saliva, or formed into a pill with treacle. When the stomach is weak, an ounce of some light bitter infusion, with twenty drops of sal-volatile, may be tried. The occasional use of the tepid bath will keep the skin in a more healthy state, and the following lotion will allay the irritation :—half a drachm of sugar of lead, a drachm of carbonate of ammonia, and half a pint of rose-water mixed: or the surface may be dusted with arrow root or starch powder.

NEURALGIA.

Pain in a nerve. Various parts of the body are liable to be affected with excruciating pain, without any palpable change of structure,—such as inflammation or swelling. The pain is sometimes traceable along the course of a nerve, —as when a blow on the nerve at the elbow causes pain in the little finger; at other times the pain is confined to a particular spot, and may arise from a distant source of irritation—as in the brain, spinal marrow, or stomach. Neuralgic pains are most frequent about the head, next about the abdomen, and lastly in the extremities. Those of the head are known as tic douloureux, hemicrania; others as stomach pain, angina pectoris, and perhaps sciatica; now and then the breast or the testicle is the seat of pain. Truly nervous pains are characterised by the suddenness with which they come and go, by their intermittence in many cases, by the regularity of the periods at which they sometimes return, by the absence of swelling when external, or of fever when internal, and by the suspension of pain during sleep. After long continuance they give rise to tenderness, increased vascularity, and swelling.

TIC DOULOUREUX is mostly confined to the fifth pair of nerves, which branch out over the face. The branch over the orbit or eye-brow is the most frequently attacked, but sometimes all the branches are affected, and the torture is excessive. Pain in the upper one, over the orbit, involves all the surrounding parts. There will be frequent gushes of tears, and the eye is often blood-shot. When the branch under the eye and the lower one at the chin are more particularly affected, the teeth, the gums, the side of the tongue, and the cheek of the same side, are involved in the intense pain. During the paroxysm the features are apt to be distorted by the spasmodic action of the muscles of the face, sometimes to the extent of tetanic rigidity, so as to hold the jaw fixed and immovable. The pain is usually confined to one side of the face. The paroxysms are induced by very slight causes: a current of air, a sudden jar or shake, or any circumstance which reminds the patient of his malady, will be sufficient. Firm pressure on the part will sometimes arrest it, causing a sense of numbness to take the place of the previous agony. Tic douloureux occurs more frequently in persons out of health and of pale complexion. It is often referable to some disorder of the digestive organs; it is connected with rheumatism, or produced by malaria where ague prevails, and then the paroxysms become periodical. Sometimes it arises from a carious bone or a spicula of bone projecting in the interior of the skull, and occasionally, though rarely, from plethora.

Treatment.—Mr. Abernethy used to say, "there were two functions wrong,—those of the nervous system on the one hand, those of the digestive on the other. You must seek to put the digestive organs right, or to soothe the nervous system, according as the one or the other may seem to be the principal cause of the disease." When the cause is in the intestines, evidenced by furred tongue, loss of appetite, and costive bowels, purgatives do good,—as half a drachm of extract of colocynth, one drop of croton oil, and one drachm of compound galbanum pill, mixed accurately; fifteen grains in three pills, to be taken at bed-time. Where there is acidity, carbonate of soda, dissolved in water, should be taken; where there is rheumatism in the form of sciatica, the remedies for that disease must be applied. When the digestion is put in order, the carbonate of iron, in half-drachm or drachm doses, in honey, may be taken three or four times a day, with an occasional purgative. Where the affection is intermittent, quinine should be given (see Ague). Where narcotics are requisite, belladonna is most useful; one grain of the extract may be taken on, or previous to, the accession of pain, and repeated every two or three hours till relief be procured. Rubbing the part with a small portion of the tincture of aconite, or the aconite liniment No. 133, will be useful; or two scruples of the iodide of mercury may be mixed with one ounce of lard, and a small portion rubbed on the part twice a day till slight irritation is produced. In neuralgia of the breast, which occurs in plethoric habits, the carbonate of iron should be given, as also in that of the testicle, and the part smeared with belladonna ointment. Neuralgia of the jaw often depends on a carious tooth, which should be removed. For face-ache, not tic douloureux, half a drachm of the muriate of ammonia, taken three times a day in water, is useful. For hemicrania, (pain of one side of the head,) see Headache.

NIGHT-MARE; INCUBUS.

A sensation of a distressing weight during sleep (mostly preceded by a dream), or of being grasped by some person from whom fruitless endeavours are made to escape, and impeding motion and speech, the sufferer at length awaking in terror. The causes may be mental irritation, fatigue, or more frequently difficult digestion, distension of the stomach from flatulence, or an uneasy position of the body.

Treatment.—The avoidance of extreme fatigue, and of late suppers, particularly of solid food. The bowels should be carefully attended to (see Dyspepsia).

NOCTURNAL EMISSIONS.

These are a source of much mental uneasiness, and sometimes of debility, becoming a species of hypochondriacism: young men are the most frequent subjects of them. Unless they are very excessive, there is no reason to regard them with alarm. The remedies are a frugal diet, avoiding all stimulating drinks and exciting causes, taking regular active and efficient exercise, using general or local cold bathing or sponging, and keeping the bowels regular, in the plethoric, by saline aperients, as mixtures Nos. 20, 23; in the pale or phlegmatic, by the pills Nos. 42, 42*a*, and 42*b*. In cases of debility, the mineral acids and chalybeates, Nos. 126, 127, or 129, and travelling, should be tried. A medical man of reputation should be consulted.

OVARIAN DROPSY AND TUMOURS.

OVARIAN DROPSY.—The ovaria (see p. 51) are the seat of a particular kind of dropsy. The fluid is sometimes limpid and thin, at others discoloured and gelatinous, and is contained in one or several cysts. While it is bearable, and does not interfere with the respiration, it is a question whether the disease is not better left alone; as, after the operation of tapping, the fluid is apt to be secreted again very rapidly, and the cyst or cysts to be refilled.

OVARIAN TUMOURS.—The ovaria are also the seat of firm tumours, filled sometimes with various anomalous substances,—as hair, teeth, &c. The distinctive character of these tumours is very obscure. Their removal has been effected by surgical operation with varied success, as has also that of the dropsical cyst. Beyond attending to the general health, little can be done for these diseases in domestic practice. A belt sufficiently firm to support the enlarged abdomen is exceedingly useful. Neither disease is incompatible with longevity and moderate enjoyment of life.

PALSY

Is a total or partial loss of sensation or power of motion, or of both, in one or more parts of the body.

It may be perfect or imperfect. The first is where both sensibility and power of motion are affected; the second, where one or the other only is lost or diminished. It may be general or partial, as it affects the whole body or a portion of it. Partial palsy is divided into hemiplegia, when it is confined to the lateral half of the body, and paraplegia when it affects the lower part of the body only. When the palsy is still more limited, it is termed local palsy,—as of one side of the face, or of the whole or part of a limb.

GENERAL PALSY, or complete loss of sensation and motion, is soon followed by death. In a few cases it has happened that palsy of all the muscles of voluntary motion has occurred, and that life has been carried on for some time by the exercise of the involuntary functions only. In most cases the loss of motion is more marked than that of sensation, but the latter and the intelligence soon become affected.

HEMIPLEGIA implies complete palsy of all the voluntary muscles on one side, and in such cases the intercostal muscles of that side do not contract. It is the most common form of palsy, the left side being more frequently affected than the right. The patient may *will* the motion of his leg or arm, but they do not obey the mandate; if lifted up by another person, and then let go, they drop, as if perfectly lifeless. The muscles of the face on the palsied side are inert, the patient cannot frown or smile on that side; the tongue, when protruded, turns towards the same side, as the muscles which should protrude on that side cannot act. The voice is thick, muttering, and unintelligible, and sometimes the patient is speechless, although conscious and rational. The mental faculties are sometimes uninjured, but more frequently they are irreparably damaged, the memory especially being affected; and there is a great tendency to shed tears, and to be disturbed from slight causes. The palsy may be of different degrees and extent; the patient may be able to use his limbs, but they are feeble; in endeavouring to walk he trails one leg behind, but is unable to stand on it or plant his foot securely. He cannot double his fist firmly, or lift up his arm. There are innumerable gradations, from slight weakness of the affected muscles to complete immobility. When only one limb suffers, it is generally the arm, and when recovery takes place it is first noticed in the leg. In irrecoverable cases, the palsied limbs waste from defective nutrition, or become atrophied; they occasionally appear larger from œdema. It should be borne in mind that they are unable to resist the influence of cold or heat equally with the sound parts. The pulse becomes slower, and the bowels obstinately constipated, when the power of the involuntary muscles is suspended. When this is sensibly the case, the probability is that the brain is seriously injured. Hemiplegia is generally the result of a rupture of a blood-vessel, which may occur without a fit of apoplexy; there may be an effusion of blood, perhaps to so slight an extent as to cause fainting or confusion only: the palsy takes place on the opposite side to that of the effusion. Hemiplegia may arise from general debility, in which the brain participates; it is often the disease of over-worked literary men, or men of business, and is apt to end quickly in a softened state of the brain, with mental imbecility or general palsy.

Paraplegia, or palsy of the lower half of the body, may creep on insidiously and slowly, with weakness and numbness of the feet and legs, or tingling of the parts, unattended with pain; by degrees the weakness increases, until there follows complete loss of sensibility and power of motion in the lower extremities, with palsy of the bladder and rectum; the patient is obliged to remain in bed, and sloughs form on the loins, causing excessive irritation and exhaustion. There is reason to believe that the defect of power in some of these cases is merely functional, caused by exposure to cold (as by standing in the water a long time fishing, or the misuse of the cold hip-bath), intemperance in drinking, excessive sexual intercourse self-abuse, inflammation of the bowels or kidneys, effusion on the spinal cord, in consequence of injury, or tumours pressing on the cord. The most obscure cases have mostly been preceded by affection of the head, as giddiness, transient confusion of thought, and loss of memory. Although voluntary motion may be completely lost in the lower limbs, involuntary movements and spasms of the muscles are common. Paraplegia rarely proves fatal till the disease extends to the upper extremities. In many cases the reflex functions (see pages 20 and 21) remain entire, irritation of the sole of the foot, by the application of a hot spoon, causing involuntary contraction of the muscles. "Paraplegia may ensue from disease of the womb, and also of the urethra" (Graves).

LOCAL PALSY.—Local palsy of the face, called facial palsy, is of much importance, as affecting exclusively one side of the face. It is distressing and alarming to the patient and friends, and is not always free from danger; but more commonly it is disagreeable and disfiguring only. One half of the face is blank, unmeaning, and void of all expression, the other half retaining its natural appearance; so that the patient cannot express any feeling or emotion on one side, while the features of the other may be in full play. If the arm or leg, or both, are paralysed at the same time, or if there be a discharge from the ear, the affection results from disease of the brain or spinal cord; but not necessarily so when the face alone is palsied.

In general there is no deficiency of sensation, at other times there is total loss of sensibility in the part, without any diminution of the power of motion. As labial sounds require the action of the muscles of both cheeks, the patient learns to assist his defective articulation by supporting the palsied cheek, and so affording a fulcrum to the lips with his hand. Facial palsy may be caused by mechanical violence inflicted on the part itself, or on some distant part, by which the nerves are injured; more commonly it arises from exposure to severe cold.

Local palsy of any of the limbs, as of the hand, arm, or leg, may be caused by pressure. Palsy of the limbs often occurs to workmen in minerals, such as mercury, &c., affecting button-gilders and glass-silverers; and is accompanied by tremor or agitation. Palsy from lead is mostly, but not always, preceded by colic. The poison of lead seems to exert a peculiar influence over the nerves of the forearm and hand,—so that when the arms are stretched out, the hands hang down by their own weight. This affection is therefore called by painters "the dangles," or wrist-drop. All colour-grinders, plumbers, painters, and workers in lead, are liable to suffer from it. The most dangerous form of lead palsy is when it affects the muscles of respiration, in which case it proves quickly fatal.

SHAKING PALSY.—A tremulous agitation, or continued shaking, with loss of muscular power, usually commencing in the hands and arms, or head, and gradually extending over the whole body. The approach of this disease is very imperceptible, and its advance slow; eventually the agitation becomes so violent as to prevent sleep; the patient is unable to feed himself, deglutition and mastication are performed with difficulty, the body is bent forward, the chin resting on the breast,—the urine and motions pass involuntarily, and death, preceded by coma and slight delirium, follows. The causes are exposure to cold and damp, spirit-drinking, anything debilitating the nervous powers, and lastly, old age.

Treatment.—In hemiplegia, if the patient is of full habit, and the attack has been preceded by apoplexy, bleeding, both general and local, by cupping from the nape of the neck, may be advisable; and active purging by a dose of calomel, —from five to ten grains—followed by the senna mixture No. 20, or the croton-oil pills No. 35 every four hours, assisted by a purgative enema No. 39, till the bowels act freely. When the attack is accompanied by faintness and only partial loss of consciousness, a teaspoonful or two of sal-volatile in a glass of water may be given, and repeated in an hour once or twice, if required; the feet and legs should be immersed in a hot mustard-bath, the patient placed in bed, with his head and shoulders elevated, and an aperient of castor-oil or rhubarb, or the mixture No. 11, given; if, on rallying, there be giddiness, with flushed face and an appearance of fulness, eight or ten ounces of blood may be taken by cupping from the back of the neck, or from six to eighteen leeches may be applied, and followed by blisters or a seton. The observance of strict quietude and a spare diet is essential, and the bowels must be regulated by the mixture as above. When the disease becomes chronic, local friction with the hand or a flesh-brush should be employed, and stimulating liniments, as Nos. 135 or 136, 136*a*, 137, 138, may be used in succession; and where there is no structural disorganisation, electricity and galvanism exert a beneficial influence. In paraplegia it is of primary importance to attend to the bladder, and keep the patient clean and dry, and the same general principles as in hemiplegia should be observed with regard to the bowels, &c.: moxæ repeatedly applied in the course of the spine are useful. There is some difference of opinion as to the advantages of cupping or leeching the spine. Dr. Graves says, "I never saw good from blisters or issues to the spine. I am in the habit of selecting parts in which the greatest cutaneous sensibility exists, and of keeping up a succession of blisters along the inside of the legs, and over the anterior and inner part of the thighs: thus, in sciatica, a blister applied over the ham, or leg, where many of the ultimate ramifications of the nerves are superficial, will frequently produce much more decided benefit than when applied over the origin of the nerve itself."

Stimulating liniments should be attentively rubbed on. The tincture of cantharides, in half-drachm doses, is a good diuretic in these cases. Strychnia is useful, but should only be administered under medical superintendence. The sulphur electuary No. 51 or 52, taken for some time, is highly extolled, as also are sulphur baths: hence cases of paraplegia are materially benefited by the internal and external use of the waters of Lucan, Harrowgate, Baden, Bareges, &c. Mercury is a doubtful remedy.

In palsy of the face, where it arises from a blow, or where there is local tenderness with increased heat of the part, the application of a few leeches behind the ear and at the angle of the jaw will be useful: where it is the effect of cold, fomenting the part or steaming with the vapour of hot water, and friction with the stimulating liniments Nos. 135, 136, 137, are to be recommended; and where the stomach is affected, an emetic should be given, followed by a course of active purgatives, and the observance of an abstemious diet. Where the face otherwise recovers, the eyelids will long remain powerless, leaving the eye exposed to wind and rain.

Palsy of the fingers, hands, legs, &c., is best treated by attention to the general health, mustard baths, friction with stimulating liniments, and electro-magnetism.

PILES (HÆMORRHOIDS)

Are tumours situated at the verge of the anus or fundament, formed by distension of the veins at the extremity of the lower bowel (rectum). By degrees one or more of the veins become gorged with blood, and a little tumour or tumours about the size of a bean are formed. They may be either within or without the bowel; in the former case, they are forced down every time the bowels are relieved, after which they return or may be pressed up by the finger. If the bowels are not carefully regulated, after a time the piles continue down, and are apt to become irritated by walking; and should the bowels be more confined than usual, it needs more than ordinary efforts to relieve them, and the piles becoming greatly distended with blood, are unable to return, and are swollen, black, and very painful, often inflame, and sometimes burst, to the great relief of the patient; or they may run on to the formation of abscess, which after a time discharges, and perhaps lays the foundation of a fistula. Occasionally the veins inside the bowel become very large, red, and of an uneven surface, and their walls so thin, that the mere effort of relieving the bowels without much straining causes them to bleed very freely. Another variety of piles is, when the swelling becomes filled with fibrinous deposit from the blood, forming permanent tumours or excrescences outside the anus: these may remain quiescent if the causes producing the disorder be removed; but if, either from the regularity of the bowels not being preserved, or from the effect of cold, or the abuse of purgative medicine, they become inflamed, much suffering is induced, called a fit of the piles.

Causes.—Whatever obstructs the circulation of the blood through the veins of the intestines, as affections of the liver, costive bowels, or pressure from the enlarged womb during pregnancy.

Treatment.—The prevention of piles is best effected by attention to the bowels, which ought to be relieved daily, their regular action is equally beneficial to the health and temper, and they should therefore be invited to act at regular periods. There is no need to be constantly taking medicine; indeed, if the person be of a costive habit, and if the relief be made to depend on medicine, the quantity taken will be obliged to be increased in proportion to the frequency of taking it. Regular exercise is often sufficient to excite the bowels to proper action, in which they may be assisted by drinking a half-pint tumbler of cold water on rising in the morning, which serves as a gentle laxative. If this be insufficient, it will be beneficial to throw up into the bowel half a pint of lukewarm water every morning, by means of an elastic gum bottle or an enema syringe, which may be obtained in a very simple and portable shape. Where there is a disposition to piles, every little knot or swelling should be pressed up daily after relieving the bowels; by attention to this, keeping the bowels moderately open, and ablution with cold water, the disposition will mostly be got rid of. Where medicine is essential, a teaspoonful of the confection of senna (lenitive electuary), or a small dose of castor-oil, may be taken occasionally, or the following:—

Take of Sulphur, half an ounce; Magnesia, Cream of Tartar, and Powdered Ginger, of each two drachms. Mix. A teaspoonful for a dose in a glass of water,—or the whole may be made into an electuary with honey and treacle, and a tea-spoonful taken.

Where the piles are tender, a small portion of the ointment of sugar of lead, or of galls, may be passed up the bowel daily.

Fit of the piles.—Where they become very much swollen, causing exquisite pain, and cannot be returned by moderate pressure, and by the application of linen dipped in cold water while the patient is lying down, a sufficient number of leeches should be put on at once; and if there is not immediate benefit, the parts should be fomented with a sponge wrung out of hot water, or steamed for a quarter of an hour by sitting over hot water placed in the pan of a night-chair every three, or four, or five hours, after each time putting on a warm bread and water poultice: this constant steaming and poulticing will rapidly relieve an acute attack. In the meantime, such medicine as will open the bowels, procure fluid stools, and diminish the engorgement of the rectum, should be given: as the following:—

Take of Confection of Senna and Prepared Sulphur, of each one ounce; Powdered Jalap, one drachm; Copaiba, half an ounce;

Powdered Ginger, half a drachm; Cream of Tartar, half an ounce; Syrup of Ginger, sufficient to make an electuary: of this a teaspoonful may be taken night and morning.

After the attack has subsided, the piles may be dabbed with the following lotion five or six times a day:—

Take of the dilute Solution of Sugar of Lead, six ounces; Spirit of Rosemary and Tincture of Opium, each one ounce. Mix. It has a very good effect in relieving the relaxed state of the rectum (Graves).

Mr. South says, "Great relief will be often afforded, when the pile is swollen and inflamed, by freely opening it with a lancet, and letting out the clot of blood formed there: this, however, had better be done by the doctor." Till the inflammation and pain have quite subsided, the recumbent posture should be observed.

PLEURISY

Is an inflammation of the pleura, the membrane lining the chest and enveloping the lungs. The symptoms generally commence with shivering and rigor, followed by acute pain or stitch in the side, flushing of the face, increased heat of the body, cough, difficulty of breathing, and a hard, strong, and frequent pulse. Pain is one of the most prominent features of the disease, and often varies as to its situation, severity, and duration. It is mostly in one spot under one of the breasts, and is compared to the thrust of some sharp instrument, when a deep inspiration is made. The pain is occasionally felt in some other places, as in the shoulder, the arm-pit, under the collar-bone, along the breastbone, or over one side of the chest; wherever it is situated it is increased on pressure and by inspiration, by cough, or by lying on the affected side; this induces the patient to breathe quick and short, and he is fearful of coughing or lying down, and is greatly alarmed. Sometimes the pain is slight, and only felt when a deep inspiration is made. It frequently exists from the beginning, but at other times does not come on for a day or two, and moves from one part to the other. The cough is usually suppressed and dry, unless when complicated with bronchitis or pneumonia, when it will consist either of frothy mucus or be rust-coloured.

The inflammation is of the adhesive kind, and is apt to leave a thickening of the pleura, and a union between the membrane covering the lungs and that lining the inside of the chest; at other times fluid of different consistencies is effused in the cavity.

Causes.—Exposure to cold, mechanical violence, as blows or falls, and all the causes which give rise to other inflammatory complaints, and affecting chiefly those of a vigorous constitution and plethoric habit.

The probable result depends upon the severity of the symptoms. If the fever and inflammation have run high, and the pain should cease suddenly, with a change of countenance and a sinking of the pulse, great danger may be apprehended; but if the heat and other symptoms of fever abate gradually, if respiration be performed with greater ease and less pain, and a free and copious expectoration ensue, a speedy recovery may be expected.

Treatment.—Pleurisy has so close a resemblance, both in its progress and symptoms, to pneumonia or inflammation of the *substance* of the lungs, that the same mode of treatment as is there prescribed is most appropriate; it should therefore be promptly adopted, and, where it is possible, the patient should be at the earliest moment placed under the care of a medical man.

SPURIOUS PLEURISY, or rheumatic pleurisy, is a spasmodic affection of the *muscles* of the chest, and ordinarily those between the ribs. It is increased by taking a deep inspiration, or raising the arm above the head, or on making any exertion. It is unaccompanied by fever, cough, or difficulty of breathing, except in the form of a stitch. It is commonly caused by exposure to cold, and sometimes by violent exercise.

Treatment.—In aggravated cases the application of eight or ten leeches may be requisite; but an ordinary case generally yields to warm applications, as mustard poultices, or friction with a stimulating liniment; these failing, a blister should be applied to the side, and the saline sudorific draught, No. 113, (to which may be added fifteen minims of the wine of colchicum,) taken for two or three nights successively, and an aperient in the morning occasionally, or the Pill of Colchicum and Colocynth, No. 15, nightly, with some diluent drink.

POISONS.

A poison is defined by Dr. Taylor as "a substance which, when taken internally, is capable of destroying life without acting mechanically on the system." The corrosive action of mineral acids and alkalies being considered chemical, they are classed as poisons. This definition will therefore properly exclude pins, needles, pounded glass, boiling water, or oil, &c. Some substances, however, act as poisons when applied to the skin, as corrosive sublimate, cantharides, arsenic, &c.; others by inoculation through a wound in the skin, as putrefied animal matter, the poison of hydrophobia, &c.; and others by inhalation, as the poisonous gases. Poisons may be animal, vegetable, or mineral. They may cause illness or death by their immediate action, or by the accumulation of small doses long continued, which at last act suddenly. The list of possible poisons is of immense extent; but in this article the more usual and dangerous poisons administered through the stomach will alone be noticed, and only so far as to give some general directions for the immediate treatment of the urgent symptoms of acute poisoning: in all cases medical aid should be obtained as quickly as possible, and should the poisoned person recover, the constitutional treatment will naturally be confided to him. Instant attention, however, being of primary importance, it is the province of a work on Domestic Medicine to point out the most accessible remedies.

Poisons have both a local and remote action. The former may be by chemically destroying the part with which they come in contact, as by the corrosion of the mineral acids and alkalies; by irritating and inflaming, without corroding it, as in the case of cantharides; or by paralysing the sentient extremities of the nerves without irritation,—aconite, morphia, and prussic acid, act in this way. As instances of remote action, may be mentioned that of cantharides on the urinary organs, of mercury on the salivary glands, of morphia on the brain, of digitalis on the heart, and of strychnine on the spinal marrow. "Poisons generally, whether they corrode, irritate, or produce no apparent alteration in the part to which they are applied, destroy life by producing a fatal impression upon a remote vital organ" (Taylor).

Poisons have been classed, according to their action, as

Irritants, Narcotics, or Narcotico-Irritants. The symptoms of irritant poisoning are violent vomiting, purging, and intense pain in the abdomen, generally occurring within half an hour from the time of swallowing the substance: if the poison should be also corrosive, the effect is more rapid, generally immediate, and in the act of swallowing it there is an acrid or burning taste extending from the mouth down the œsophagus to the stomach. Irritant poisons are generally metallic or non-metallic minerals, as the mineral acids and alkalies, phosphorus and arsenic. Some few are from the animal or vegetable kingdoms, as cantharides and poisonous food, &c., or aloes and savin. Narcotic poisons produce headache, vertigo, paralysis, coma, and sometimes tetanus: they have no acrid taste and do not cause purging or vomiting, nor inflame the viscera. They belong to the vegetable kingdom, as opium, prussic acid, &c. Narcotico-irritant poisons have a compound action, as their name implies, causing vomiting, purging, and irritation of the alimentary canal, like irritants; and stupor, coma, paralysis, &c. like pure narcotics. Some have also a hot acrid taste, as monkshood. They are chiefly from the vegetable kingdom, and very numerous; nux vomica, foxglove, hellebore, hemlock, and poisonous mushrooms, are examples.

Symptoms of poisoning. — When any of the above-mentioned symptoms occur suddenly to a person in good health, where there is no other obvious cause for the attack, within two hours after he has swallowed either solids or liquids—most poisons, except phosphorus, manifesting themselves within this time—poisoning may be suspected, and we should seek for other evidence by observing whether there is any unusual appearance or indication of poison in the matters vomited, and whether there is any circumstance (such as others having partaken of the same meal and being similarly affected) or any peculiar conduct on the part of any individual which may tend to increase or diminish our suspicion that accidental or criminal poisoning has taken place. It should, however, be borne in mind that "the symptoms produced by perforation of the stomach, which in some respects resemble those of arsenical poisoning, almost always attack an individual after a meal. . . . And it is highly probable that eating a full meal *after long fasting* will give rise to symptoms resembling those of irritant poisoning"

(Taylor). There are many diseases of which the symptoms resemble those of poisoning, but as disease is much more frequently mistaken for poisoning than poisoning for disease, the error is on the safe side. Diseases likely to be mistaken for irritant poioning are cholera, enteritis, peritonitis, strangulated hernia, and hæmatemesis. Diseases resembling narcotic poisoning are apoplexy, epilepsy, some diseases of the brain and heart, and rupture or distension of the stomach.

Precaution should be taken, in all cases of suspected poisoning, against throwing away the vomited or evacuated matters, and removing food, bottles, &c.; and this, not only with a view to afford the means of detecting the nature of the poison, but also for the purpose of legal evidence in case of criminal poisoning: all things, therefore, which may elucidate the matter should be carefully guarded by being locked up under seal, &c.

General Treatment.—It was formerly supposed that there were certain substances which, if taken before the poison, would counteract its effects. There are, however, none such. The treatment must therefore be directed, 1st, to remove the poisonous matter from the stomach; 2nd, to protect the coats of the stomach against the action of the poison by involving it in some viscid substance; 3rd, to act upon the substance chemically by the exhibition of antidotes, so that the resulting compound shall be an innocuous substance; and 4thly, to combat its constitutional effects,—as, for instance, by employing every means to rouse the sufferer in a case of narcotic poisoning, &c. It should be observed, that besides these chemical antidotes it was formerly supposed that certain substances possessed the *specific* power of removing the symptoms produced by poison, by acting on the *system*, and not chemically on the poison; these may be called constitutional antidotes. Their effect is not simply analogous to that of stimulants in arousing the nervous system, and thus acting antagonistically to narcotics, but is specifically antagonistic to some particular poison. There are, however, only two, or at most three, which have any claim whatever to this power:—mercury given to salivation may correct the remote operation of lead, and nauseating doses of antimony may subdue mercurial salivation. Chlorate of potash has also been said to be antagonistic to mercury.

The first of the above courses—removing the poison from the stomach—is by far the most important, and should not for a moment be deferred in order to seek for or administer antidotes. For this purpose emetics and the stomach-pump may be employed. Sulphate of zinc is the best emetic; or a dessert-spoonful of mustard in half a glass of warm water may be given every five or ten minutes; or a thick mixture of yellow soap and warm water; and the back of the throat may be tickled with a feather. Ipecacuanha and tartar emetic should be avoided. As emetics are themselves irritants, caution must be observed in their use. Warm water will act as an emetic, and it alone should be used to promote the vomiting which the irritant poisons generally themselves cause. In the case of oxalic acid, however, water should be used sparingly, as it dissolves and diffuses the poison, and thus renders it more easily absorbed. The stomach-pump is rather a dangerous instrument in the hands of inexperienced persons, though exceedingly useful when properly employed. It should never be used in the case of poisoning by corrosive substances, as it may lacerate the already softened membranes, and even perforate the œsophagus or stomach. For the second object—viz. protecting the coats of the stomach—barley water, decoction of linseed, flour and water paste, albumen, white of egg, or a mixture of oil and lime water, may be given. For the third object, the proper antidotes will be mentioned under each poison. Some antidotes act by neutralising the poison, as when magnesia is given as an antidote to the mineral acids, or lemon-juice in poisoning by the alkalies, in which cases soluble, but harmless, salts are formed. Other antidotes combine with the poison and form insoluble and, at the same time, harmless substances, as when the alkaline sulphates act upon lead so as to form an insoluble and inert compound. There are no antidotes to the vegetable poisons. For the fourth purpose—of combating the constitutional effects—we should, in the case of narcotic or narcotico-irritant poisoning, cause two active persons to walk about with the patient, dash cold water on the chest, back, and head, beat the palms of the hand and soles of the feet, or rub them with a stimulating embrocation, apply ammonia to the nostrils, and, if the power of deglutition exists, a strong decoction of coffee may be given in poisoning by opium. Children may be plunged into a warm bath and suddenly raised into the cold air. But all these means for rousing the patient are inferior to the passing of shocks from the electro-magnetic apparatus along the course of the spine and in the cardiac region. Other symptoms, such as depression, irritation, &c. must be treated upon the principles pointed out in different parts of the work. From the above remarks, the mode of treatment of poisoning by the following commonest and most dangerous poisons will be more clearly understood. They are classed as non-metallic irritants, metallic irritants, vegetable irritants, animal irritants, narcotics, and narcotico-irritants.

Non-Metallic Irritants.

Acids, mineral.—Sulphuric acid or oil of vitriol; Nitric acid or aqua fortis; Muriatic acid or spirit of salt.

Symptoms.—These being corrosive irritant poisons, the symptoms will be immediate, as destruction of the soft parts of the mouth and throat, burning sensation from the mouth to the stomach, fetid breath, changed voice, great exhaustion and coldness, with an irregular pulse, and vomiting of a dark-coloured acid matter which reddens litmus paper, and sometimes corrodes anything it touches.

Treatment.—Magnesia, soda, chalk, or the plaster of a ceiling in milk or water; also soap and water, and afterwards any thick viscid liquid, as linseed oil, thick gruel, &c. The magnesia or chalk should be finely powdered. For sulphuric acid a solution of the carbonates of soda or potash is preferable.

Acid, oxalic, or Salt of Lemons. A most powerful poison, and very frequently mistaken for Epsom salts. If the dose be large, the symptoms somewhat resemble those of poisoning by the mineral acids, but "from Dr. Christison's experiments it would appear that it is still a poison even when so diluted as to lose its irritant and corrosive properties. In a large dose, but much diluted, the poison produces paralysis of the heart. In a smaller dose the spinal marrow is affected, and there is tetanus; in a still smaller one it acts as a narcotic" (Taylor).

Treatment.—Water should be only sparingly given (see p. 552), but the stomach-pump should be used. Chalk, or the plaster of the ceiling, or magnesia finely powdered and mixed with water (the alkalies being carefully *avoided*). Afterwards the stomach should be washed out with lime water by means of the stomach-pump, and, if there be collapse, warmth and stimulants must be tried.

Ammonia, Sal Volatile, and Spirits of Hartshorn.

Symptoms.—Burning pain in the throat and loss of voice, difficulty of swallowing, insensibility and dilated pupils; sometimes inflammation of the larynx, and pneumonia. There will be an odour of ammonia.

Treatment.—Vinegar or lemon-juice.

Metallic Irritants.

Arsenic:—Arsenious Acid or white arsenic; Orpiment or yellow arsenic; Realgar or red arsenic.—The first of these is highly poisonous, and frequently used as such; it is generally in the form of white powder, or in opaque masses resembling enamel: the two latter are not much employed as poisons. They are all non-corrosive irritants.

Symptoms.—Faintness, nausea, burning pain in the stomach, which continually increases, diarrhœa, and cramps in the calves of the legs, incessant vomiting of a brown turbid matter mixed with mucus and sometimes blood, tenesmus, burning heat in the throat, intense thirst, and frequent and irregular and small pulse, skin sometimes very hot, but cold and clammy in the stage of collapse, and respiration painful. Before death coma sometimes occurs, with paralysis, tetanic convulsions, and spasms of the extremities.

Treatment.—Emetics, the stomach-pump, mucilaginous drinks, copious draughts of a mixture of milk, lime water, and white of egg. Some recommend afterwards the exhibition of the hydrated sesquioxide of iron.

Mercury, the Bichloride of, or Corrosive Sublimate.—A corrosive irritant. It is generally in the form of very heavy crystalline masses, or of a white powder; it is very soluble in water, and has an acrid metallic taste.

Symptoms.—These come on very quickly. They resemble those caused by arsenic, but the taste is well marked, the evacuations are more frequently mixed with blood, there is sometimes suppression of urine, the tongue is white and shrivelled, and the internal parts of the mouth are swollen, and appear as if they had been washed with a solution of nitrate of silver. The symptoms at first resemble those of cholera, but afterwards those of dysentery. In cases of chronic poisoning there is salivation.

Treatment.—Emetics. The use of the stomach-pump is dangerous (see p. 552). Eggs beaten up in water, and thick flour paste. If there be salivation, small doses of chlorate of potash may be given.

LEAD: The Acetate or Sugar of Lead; the Subacetate, or Goulard's Extract; the Carbonate or White Lead.—Poisoning by lead is generally of the chronic form, and has arisen from sweetening wines with litharge. Colica pictonum (which see) is caused by the absorption of the carbonate.

Symptoms.—The acetate and subacetate cause a nauseous metallic taste, pain in the throat and stomach, twisting pain over the abdomen, vomiting, constipation, convulsions, partial paralysis, foul breath, and tender gums, with a blue line along their edges. The carbonate causes cold perspiration, heavy breathing, constant vomiting, very severe colic, dryness of throat, anxious countenance, a hard small quick pulse, dark-coloured stools, paralysis, and convulsions.

Treatment.—Emetics, and the stomach-pump; milk and white of egg in large quantities; the sulphates of soda or magnesia in the case of the first two poisons, and the same salts with vinegar or lemon-juice in the last.

COPPER: The Sulphate or Blue Vitriol; the Subacetate, or Verdigris; the Arsenite, or Scheele's Green.—The latter of the salts is used for colouring confectionary. They are all poisonous. Food of an acid, saline, or greasy character, cooked in copper vessels, has frequently become poisonous.

Symptoms.—Violent vomiting, which sometimes expels the whole of the poison, the vomited matters acquiring a blue tint on the addition of ammonia; headache, colicky pain in the abdomen, diarrhœa, intense thirst, in aggravated cases spasms and convulsions, and sometimes jaundice.

Treatment.—The stomach-pump may be useful if the poison has not been taken in coarse powder. The vomiting should be encouraged by warm milk, mucilaginous drinks, and eggs beaten up. Sugar is said to be useful.

ANTIMONY—Tartarised, or Tartar Emetic.—This poison is characterised by a strong metallic taste, and causes the symptoms of other metallic irritants; there are also cramps, symptoms of intoxication, and great prostration of strength

Treatment.—The vomiting is generally of itself excessive. If not, it may be promoted by the usual means, or tickling the throat with a feather. Strong green tea and decoctions of the astringent vegetables, as oak-bark or gall-nuts, or the tincture of catechu, &c. may then be given.

Zinc, Sulphate of, or White Vitriol.

Symptoms. — A sour taste, sense of choking, nausea, excessive vomiting, frequent stools, difficult breathing, quick pulse, pale face, cold extremities.

Treatment.—The same as for tartarised antimony.

Vegetable Irritants.

The vegetable irritants "soon after they are swallowed produce severe pain in the abdomen, with vomiting and diarrhœa. There are rarely any cerebral symptoms, and no convulsions, but stupor, delirium, and convulsions are occasionally observed. Some act especially on the bowels, and in large doses produce hypercatharsis" (Taylor).

Treatment.—After the expulsion of the poison by emetics, &c. antiphlogistic measures may be used, and, if the poison has reached the bowels, purgatives or cathartic enemata may be administered.

The list of these is large: among them may be mentioned aloes, capsicum, castor seeds, croton oil and seeds, savin, ergot of rye, oil of turpentine, and decayed vegetable matter.

Savin is believed frequently to act as a poison from its use as a popular means of procuring abortion. It produces violent pain in the abdomen, vomiting, strangury, and sometimes salivation.

Croton Seeds act as violent purgatives, causing a burning sensation from the mouth downwards. Even the dust of the seeds, when inhaled, has caused violent symptoms.

Ergot of Rye.—Ergot is a disease which affects other grasses besides rye. The diseased grain is of a curved form, and from half an inch to an inch or more in length. It is generally employed in medicine as a specific promoter of the contractions of the uterus. When given in large doses it is liable to occasion dryness and irritation of the throat, salivation, thirst, burning pain in the stomach, vomiting, colic, and sometimes diarrhœa. Cerebral symptoms, as headache, giddiness, and stupor, are also met with.

Animal Irritants.

The chief of these are Cantharides, or Spanish fly; poisonous food; and the poison of hydrophobia and venomous reptiles, &c.

Cantharides, blistering plaster, and tincture of cantharides, are different preparations from an insect. Cantharides is chiefly used as a blistering agent, but it has been frequently given for exciting the venereal appetite or procuring abortion. It acts as a poison either when taken into the stomach or applied to the abraded surface. The symptoms are "a burning sensation in the throat, difficulty of swallowing, violent pain in the abdomen, nausea, vomiting of bloody mucus, thirst, dryness of the fauces (but sometimes salivation), pain in the loins, and incessant desire to make water, although only a small quantity of blood is passed; the abdominal pain then becomes very severe and griping, diarrhœa supervenes, there is often severe priapism, and the genital organs are swollen and inflamed: in fatal cases death is usually preceded by syncope, vertigo, and convulsions. When taken in the form of powder, shining green particles may be observed in the matters vomited" (Taylor).

Treatment.—Emetics, demulcent drinks, as a strong solution of gum arabic, and demulcent enemata. Oil dissolves the active principle of the poison, and is therefore injurious. The state of the throat scarcely admits the use of the stomach pump.

POISONOUS FOOD.—Some persons are affected in a remarkable way by particular kinds of food; but partially putrid food, particularly sausages, frequently acts as an irritant poison, and it must be treated as such.

VENOMOUS REPTILES, INSECTS, ETC.—For the bite of the adder, apply poultices and fomentations, to which laudanum or decoction of poppies may be added if the wound be painful. If the system be much depressed, a teaspoonful of salvolatile in water may be given at intervals. For the sting of bees, wasps, and hornets, we must first ascertain whether any portion of the sting remains in the wound; and if so, we must extract it by tweezers or squeezing the sides of the wound. The wound should then be gently rubbed with oil and alkaline solutions,—a weak solution of ammonia is the best. For Hydrophobia, see p. 494.

Narcotic Poisons.

The chief of these are opium and its preparations, prussic acid, henbane, lettuce, camphor, alcohol, and ether.

The principal symptoms of narcotic poisoning are described above (see p. 550). These poisons have no acrid or corrosive properties, no chemical action, and rarely give rise to vomiting or diarrhœa. They chiefly affect the brain, but sometimes have a remote effect upon the spinal marrow, as when they cause tetanus.

Opium, and its preparations, as laudanum, &c.; morphia and its preparations; medicines containing opium, as compound soap pill, Dover's powder, &c., Godfrey's cordial, sedative solution, Dalby's carminative, &c. &c. For a description of some of these see Part II.

The Symptoms of poisoning by opium are giddiness, stupor, general insensibility, contracted pupils, the pulse at first small, quick, and irregular, and the breathing hurried; afterwards the pulse is slow, and the breathing slow and stertorous, the muscular system is relaxed, and the pulse at last becomes imperceptible; sometimes convulsions precede death.

Treatment.—Removal of the poison by the stomach-pump, or in children by the catheter, and by emetics if the power of swallowing remains. This should be continued until the contents of the stomach cease to smell of opium. The individual should be sedulously prevented from falling into the comatose state, by the means pointed out above (pp. 552, 553). Antidotes are of little avail. Vinegar, which is sometimes recommended, does more harm than good. A strong decoction of coffee is a safe and excellent stimulant.

Prussic Acid; Cyanide of Potassium; Oil of Bitter Almonds; Laurel Water.—These, which all depend for their effects upon the prussic acid contained in them, are some of the most formidable poisons known. The vapour of anhydrous prussic acid, if respired, proves almost instantaneously fatal. Even the vapour of the diluted acid, accidentally respired, occasions alarming symptoms. Prussic acid is probably a narcotico-irritant, but its narcotic effect is generally so rapid that its irritant effects are not manifested. It occasions death within a very short time, generally instantaneously; but when fortunately this is not the case, its effects are similar to those of opium, except in the following respects:—the coma is much more rapid; the pupils are dilated; convulsions are more common; there is no intermission of the cerebral symptoms, as is often the case with opium, but they continually increase in severity; death takes place, if at all, within an hour, whereas, in the case of opium, the average period is from six to twelve hours. There is generally, *but not always*, a smell of bitter almonds about the mouth. Prussic acid has a local action, paralysing the part to which it is applied; and as the oil of bitter almonds is much employed in cosmetics, they must be used with great caution.

Treatment.—Diluted ammonia to the nostrils, and friction of the chest with compound camphor liniment. Cold water poured from a height upon the spine is very efficacious. Artificial respiration should be tried (see Suspended Animation). In poisoning by cyanide of potassium, a weak solution of the green sulphate of iron decomposes the poison.

HENBANE is sometimes eaten by mistake for parsnips or other vegetables. It produces a general paralysis of the nervous system, with delirium, coma, and sometimes vomiting and convulsions.—For treatment, see Opium.

ALCOHOLIC poisoning must be treated by removing the contents of the stomach as quickly as possible; cold affusion, or, better still, the injection of cold water into the ears; stimulating by ammonia, &c.; strong green tea; and if there be much cerebral congestion, *and only in that case*, bleeding may be useful; warmth should be applied to the extremities, if they are cold, and every means of rousing the individual should be employed.

Narcotico-Irritants.

The general and chief distinction, which, however, does not hold universally between this class and the simple narcotics, is, that "the narcotico-irritants have a direct action on the spinal marrow and nerves, indicated by paralysis and convulsions, while the narcotics specially affect the brain. . . . The narcotico-irritants are derived from the vegetable kingdom. Their effects are of a mixed character, since both the brain and alimentary canal are liable to be affected. To prove fatal they require to be exhibited commonly in large doses. The symptoms in most cases appear in about an hour; but sometimes they may be delayed for many hours, especially in the case of poisonous mushrooms. The general symptoms are vertigo, coma, delirium, paralysis, or convulsions. Such, at least, are the effects of monkshood and deadly nightshade. The strychnos tribe, including nux vomica, produces tetanus and convulsions, but rarely coma or delirium. Squills and foxglove produce symptoms of narcotism, generally preceded by vomiting, with pain in the stomach and bowels, indicative of an irritant action. The narcotic and irritants effect of these poisons seldom appear in the same case: in large doses they act principally as narcotics; in small doses as irritants" (Taylor). The chief poisons of this class are cocculus indicus; digitalis, or foxglove; black hellebore; conium, or hemlock; colchicum, or meadow saffron; aconite, or monkshood; poisonous mushrooms; belladonna, or deadly nightshade; nux vomica, and strychnine and its salts.

Treatment.—Emetics and the stomach-pump; or, if the poison has descended to the bowels, laxative enemata; cold affusion, stimulants, and the means already pointed out (pp. 552, 553) for rousing the patient; a decoction of black tea should be tried. These poisons have no corrosive or chemical action, but some of them, as monkshood, cause a burning heat in the throat and stomach.

Cocculus indicus is the berry of the Levant nut; it is sometimes used in the form of decoction for increasing the intoxicating power of porter and ale.

Digitalis is a well-known hedge-plant, every part of which is poisonous.

Hellebore, or Christmas Rose.—Both the root and leaves are highly poisonous: the powdered root in a dose of a few grains is a drastic purgative. It is a favourite remedy for worms.

Hemlock.—There are several varieties of this plant, all depending for their poisonous qualities upon the presence of a poisonous alkaloid, Conia. The common spotted hemlock is frequently met with in hedges; the water hemlock is sometimes eaten by mistake for parsnips; and the lesser hemlock for parsley.

Colchicum (see Part II.)

Aconite, or Monkshood, which is also known as Wolfsbane and Blue Rocket, is a root that grows freely in most parts of the country. The roots, seeds, and leaves are equally poisonous.

Deadly Nightshade, Atropa Belladonna.—There are several varieties of nightshade, of which the deadly nightshade is poisonous in its roots, leaves, and berries. The berries are frequently eaten by mistake, and have even been publicly sold in the streets. They are very poisonous. When vomiting occurs, the matter vomited is of a purple colour.

Strychnia, the poisonous principle of the Nux Vomica, is of an intensely bitter taste, and has lately been much talked of as being introduced into bitter beer; there is, however, no truth in the assertion. Nux vomica is a flat round kernel, about an inch in diameter, slightly raised in the centre, and with radiating fibres. Besides yielding strychnia, it also contains another poison—brucia. Nux vomica and strychnia are both virulent poisons, acting chiefly on the spinal marrow, producing tetanus and convulsions, and often causing death from suffocation.

POLYPUS

Is a tumour commonly met with in the nose, the womb, and sometimes the external ear-passage: it is usually formed by morbid growth from the lining membrane of those parts. Polypi are of various textures, and in the nose are occasionally malignant. They sometimes increase very rapidly, at other times slowly. They always intercept the passage of air through the nostrils, and interfere with speech, and, when large, completely block up the nostril and disfigure it. All polypi require a surgical operation for their removal. Where patients have objected to have them removed, injections of solution of alum have been recommended, or touching them daily with the muriated tincture of iron.

PNEUMONIA,

Or inflammation of the substance of the lungs, is usually ushered in by shivering, and followed by fever, pain on one side of the chest, difficulty of breathing, cough, flushed face, head-ache, and ultimately by a peculiar expectoration. The pain is indicative of some degree of pleurisy, is more severe at the beginning of the disease, and is commonly situated below one of the breasts. The patient cannot lie on the affected side from pain, and the breathing is more oppressed when he lies on the opposite side; hence he lies mostly on the back. The difficulty of breathing is generally in proportion to the extent of lung inflamed, but not always. It varies greatly in different cases: it is sometimes so slight that the patient is unconscious of it; in others it is so severe that he will be entirely regardless of everything else. He cannot lie down, and is unable to speak; his nostrils are expanded, his face flushed or livid, and expressive of the greatest degree of anxiety. The cough at first is dry, but is shortly accompanied by the expectoration of phlegm, as in a common cold, which in two or three days becomes of a rusty or red colour, extremely viscid and tenacious, composed of mucus intimately mixed with blood, and so adherent, that the vessel con taining it may be held upside down without its falling out. The disease may then be considered at its height; but if it be going on favourably, the expectoration gradually loses its viscidity and tawny colour, and becomes thinner; if unfavourably, it diminishes in quantity, is higher coloured, and seems then to accumulate in the air-passages, and to cause suffocation, or in a more advanced state of the disease it resembles thick, bloody water, or is purulent, and in some rare cases of a dirty reddish grey, with an extremely offensive odour,—the pulse is frequent and the respiration hurried. Inflammation of the substance of the lungs is mostly accompanied with pleurisy and bronchitis: simple uncomplicated pneumonia is rarely met with. The duration of the disease is from four to fifteen days, or ten days upon an average. The cause is not always ascertainable; generally the disease arises from violent exertion, sudden change of temperature, or exposure to cold. Favourable symptoms are early and free expectoration, moist skin, a sediment in the urine, spontaneous bleeding from the nose, diminished frequency of the respiration, and the pulse becoming softer and more regular. Unfavourable symptoms are extreme oppression of breathing, feeble pulse, viscid, rusty-coloured expectoration, excreted with great difficulty, and the supervention of coma and delirium.

Treatment.—The patient should always, if possible, be placed under medical care. The first step is free, copious, and early bleeding from the arm, till the oppression of the breathing is relieved, or fainting comes on, the blood being taken from a large orifice in the upright posture. The bleeding should be repeated in a few hours after, if necessary; a large number of leeches should also be put to the seat of pain, or blood drawn by cupping. After either, a warm poultice should be applied, and subsequently, if the pain and breathing be not relieved, a large blister. Immediately after the bleeding a full dose of calomel should be administered, and then half a grain of tartar emetic should be given in a glass of water, and repeated every two hours, and the dose gradually increased to two grains: if this produce vomiting or purging, add four minims of laudanum to each dose. When the oppression is somewhat relieved, but the disease not overcome, one, two, or three grains of calomel, with a quarter of a grain of opium, may be given every three hours until the gums are slightly affected; and if the calomel runs off by the bowels, mercury with chalk, commonly called grey powder, may be substituted, or friction with mercurial ointment may be made use of in the proportion of a drachm every two hours. The most strict antiphlogistic regimen and perfect tranquillity should be observed, and the patient be somewhat elevated in bed; and the temperature of the apartment should be warm, but not hot,—about 60° of Fahrenheit. But if the countenance become pallid and the pulse weak, with a coldness of the surface of the extremities and increased oppression of the breath, or threatened coma or delirium, indicative of exhaustion, sinapisms should be applied to the feet, and recourse had to stimulants, as good beef-tea, with wine, milk, &c., and the following prescription tried:—

> Take half a drachm of Sesquicarbonate of Ammonia, half a drachm of Laudanum, with six ounces of Camphor mixture, of which a tablespoonful should be given every one, two, or three hours, till the patient rallies, and then the stimulants should be gradually withdrawn.

During convalescence, a nutritive and more liberal but not stimulating diet should be allowed, a regular state of bowels preserved, and the patient carefully watched for a considerable time.

PREGNANCY,

The state of a female between the period of conception and delivery. Pregnancy does not take place before the period of puberty is established, which in general is characterised by the occurrence of menstruation (see Menstruation, also the Organs and Function of Reproduction, p. 51). The womb has a very extensive influence by nervous sympathies over many other parts of the body; hence the changes which are the result of impregnation must be productive of changes in the state of the general system. These constitute the signs of pregnancy. Many of the sympathies are not necessarily the result of pregnancy only as their specific cause, but may arise equally from uterine irritation, which is common to that and other conditions of the female system, and hence are a source of deception and error; while, on the other hand, conception is occasionally productive of so little disturbance or alteration in the exercise of the several functions usually affected, that some of our principal guides in forming an opinion are unavailable. The first effect of impregnation is an increased state of excitement or feverishness, and may take place on the very day of conception, or not for several days after; but as this excitement may occur in a newly-married female independent of impregnation, it will be better to enumerate those signs which are presumptive, and, for the most part, unequivocal.

Signs of Pregnancy.—The first sign is the cessation of the menses; but as the suppression of this periodical secretion sometimes happens from accidental causes, or from the change of life in consequence of marriage, it cannot of itself be considered an infallible sign. With few exceptions, however, when suppression of the menstrual discharge takes place in a healthy woman, where it was previously regular, and when such cessation is not accompanied by any impairment of health, it may be regarded as a symptom strongly indicative of pregnancy.

Nausea and Vomiting is another sign. In general the stomach becomes irritable, and the woman is distressed with nausea and vomiting, which occurs more particularly in the early part of the day, and is hence called morning sickness. It sometimes commences immediately after conception, but more commonly in the second or third week following. In some cases it does not take place at all, or it may arise from causes not dependent on pregnancy.

Enlargement of the Breasts is a third sign. When conception has taken place, and the menses have been suppressed for one or two periods, the woman generally becomes sensible of an alteration in the state of the breasts, in which she feels a sensation of throbbing, fulness, and tension, accompanied by soreness and tingling about the centre of them, and in the nipples. The breasts grow sensibly larger and more firm, a circle round the nipple becomes altered in colour and structure, constituting the *areola*, and as gestation advances, milk is secreted. There is much variety in the period of gestation at which these changes occur. In some instances they may be observed very shortly after conception, causing a considerable degree of tension and pain. Enlargement of the abdomen may occur from accidental suppression of the menses, or from the person becoming fat: the enlargement from pregnancy may in general be distinguished from that produced by fat, by the greater firmness of the breasts, and their having a knotty and uneven feel when pressed by the hand, and a corresponding fulness not being observable in other parts of the body. It often happens in delicate and feeble women, that very little change takes place in the breasts till pregnancy is far advanced. The areola round the nipple, taken with other symptoms, is very strong evidence of pregnancy: on it there are several small eminences, called glandular tubercles, which are mostly bedewed with a little moisture. At first the areola appears of a deep rose or flesh colour, with a light-brownish tinge, becoming darker as pregnancy advances, and varying in intensity according to the complexion of the individual, being usually much darker in persons with black hair, dark eyes, and sallow skin, than in those of fair hair, light-coloured eyes, and delicate complexion. The extent of the areola may vary from an inch to an inch and a half, and increases towards the termination of pregnancy. The nipple in the centre of the circle partakes of the altered colour of the part, and becomes turgid and prominent, and immediately around its base it is studded with the eminences before mentioned. The character of the areola, as before said, affords a strong proof of the existence of pregnancy, "no other cause being capable of producing it" (Montgomery). If, however, a woman has been pregnant before, or is nursing, it may embarrass our investigation.

Quickening is another sign. It is the first motion felt by the mother of the child within her womb, and it usually takes place between the fourteenth and eighteenth week of pregnancy, but earlier in some women. It does not imply that the fœtus only then begins *to live*, as that is the case from the first moment of its existence. The movements of the fœtus may often be felt by making firm pressure with the hand on the abdomen, although the mother may not feel them. Occasionally circumstances which are not explicable render the fœtal motions imperceptible till a much later period than usual, or even after they have been distinctly felt for some time; but this does not indicate any injury to the child. When pregnancy is complicated with ascites, or with dropsy of the womb, the fœtal motions are very indistinctly felt by the mother, or even by the hand pressed on the abdomen. Some women have the power of simulating fœtal movements where pregnancy does not exist, as was instanced in the well-known case of Johannah Southcott; others again persuade themselves that they feel the movement, but the sensation may arise from flatus moving in the bowels, indigestion, &c. Under ordinary circumstances, quickening occurs when the womb ascends out of the pelvis into the abdomen: when this is sudden, the woman is apt to be sick and hysterical, and sometimes faint to the extent of syncope; after which she is sensible of a fluttering within her, which increases gradually, until the fœtal motion is distinct and clear. From this time it becomes more forcible in proportion as the womb enlarges, and is very distressing to some women, while others are scarcely conscious of it. Some only feel it at a particular time of the day. The motion is sometimes that of a sudden jerk, at others continued and tranquil. Immediately after conception the womb increases in size and weight, sinks lower in the pelvis, and sometimes drags the bladder with it, so that a woman's belly at first is flatter than before, and the navel appears to have sunk in; but as the womb gradually increases in bulk, it can no longer be accommodated in that situation. It therefore rises into the abdomen, and from this time (of quickening) its enlargement becomes perceptible, in proportion to the period of pregnancy. About the end of the fourth month it is midway between the pubes and navel, at the fifth month somewhat below, and at the sixth month as high as the navel, which is now nearly level with the surface; at the seventh month it is half way between the navel and the pit of the stomach, and by the end of the eighth month it is as high as the latter, and fills the whole abdomen, which is now very prominent and tense, and the navel generally forms a projection beyond the surface. During the ninth month the womb continues to enlarge, but projects more forward; and towards the latter end of that month it sinks lower, so that sometimes for a week or two before labour a woman will appear and feel smaller than she was previously.

Of the equivocal signs of pregnancy may be mentioned *salivation*, which in some women is extremely copious: it subsides directly after delivery has taken place. It differs from that produced by mercury in the gums being perfectly healthy.

Milk in the Breasts is another but by no means an infallible sign, as there are many well-authenticated cases where it has occurred at periods previous to puberty, and also after the cessation of the generative faculty.

In many women there are individual peculiarities which inform them of their state, and which are very useful after the first pregnancy, as evidences of the existence of that condition of which they might be otherwise doubtful. Among the more common signs, are the features becoming sharper and the person thinner, or falling away, except in the abdomen and breasts; the temper being irritable, to the great annoyance of the woman and others,—but on some occasions it is more amiable than before; capricious appetite, longings, dislikes, depraved appetite, tooth-ache, discolouration of the skin, and cloudy urine, as if milk had been mixed with it, and, having sunk through, had partly reached the bottom, while a part remained suspended. These are common, but there is no end to the variety of symptoms. No single symptom, however, even of those considered certain, is conclusive as to the existence of pregnancy; and it is only by a combination of them that the state can be determined.

Duration of Pregnancy.—The natural period of human gestation is forty weeks, or 280 days. A good deal of confusion has arisen on this point, from considering forty weeks and nine calendar months as one and the same quantity of time, whereas they differ by from five to eight days; nine calendar months making 275, or, if February be included, only 272 or 273 days: that is, thirty-nine weeks only, instead of forty. Dr. Burn says the duration is nine calendar months and a week.

Reckoning.—In considering what time labour should come on, for all general purposes it will be convenient to calculate from midway between the last occurrence of menstruation and the one that would have followed, and allow nine calendar months from that time; as, presuming menstruation to have taken place on the 1st of March, labour may be expected on or about the middle of December.

Management.—Pregnancy acts as a protective against general disease. It is a state of increased vascular action and tendency to fulness, augmented frequently by indulgence and neglect of the bowels, and naturally relieved by vomiting.

It is a great mistake to consider that an additional quantity of food is essential during pregnancy, for the increased fatness of the patient renders a labour more difficult and painful, and the magnitude of the fœtus is not influenced by the quantity of food which the parent takes, unless it be reduced below what is sufficient for her support: indeed, "if the mother has little uneasiness, and grows corpulent during pregnancy, the child is generally small" (Denman, as quoted by Montgomery). As a means of guarding against the evils of fulness, moderation in eating and drinking should be observed, and the bowels kept duly regulated, as nothing has a more pernicious effect than loaded bowels: regular exercise also should be taken, for indolence and inactivity are hostile both to the present and future comfort of the woman, inducing a torpid state of the system, indigestion, want of sleep, and a train of nervous anxieties which harass and depress the spirits. "A pregnant woman should be made aware that the advantages obtained by well-regulated habits are by no means exclusively conferred on her; but that others, equally important, are likewise conferred on the child, for whom a larger supply of nutrition and of a better quality will thus be provided, and so, being nourished by sound and healthy fluids, will commence its career of life, strong, vigorous, and less liable to those morbid debilities and derangements which affect the children of the indolent, the pampered, or the debauched" (Montgomery).

The extreme impressibility of the nervous system in pregnant women implies the necessity for their avoiding all circumstances likely to distress their feelings, or otherwise strongly affect their minds, or deeply excite their imaginations, whether in books, pictures, or theatrical representations: they should not witness the acute sufferings of disease or the agonies of a death bed; they should not be present during the labour of others; they should not expose themselves to infectious disorders, which (although they are not so likely to catch them themselves) the infant in the womb may suffer from, as there are many instances of children being born with small-pox; and they should not see disgusting objects, for although no injury may be inflicted on the infant, the mothers' minds are apt to be much troubled with the dread of some deformity or disfigurement happening to the child.

Disorders of pregnancy.—These for the most part may be avoided by attention to the rules of diet and exercise already mentioned. *Sickness and vomiting.*—When these are in excess and occur at all times of the day (although they rarely commence before rising in the morning), it may be well to take the breakfast in bed, and remain there in the recumbent posture for some time after; as remedies, a dose of the effervescing saline mixture No. 28 may be taken three or four times a day, and if there be no diarrhœa the light alkaline or bitter aperients will be useful, as No. 6 or No. 23, and small lumps of plain ice may be slowly swallowed; where there is also pain at the pit of the stomach, the occasional application of two or three leeches there, or a small blister repeated at intervals, will be beneficial. When the vomiting is to such an extent that all food is rejected, it mostly happens that some time in the day the stomach will be tranquil, and that time should be taken advantage of to give some light nourishment; or, this failing, nutritive enemas of broths, or milk with the yolk of an egg beaten up with it, may be administered. For *costiveness*, the aperient pill No. 42*a*, or the mixture No. 38, or castor oil, or enemas of tepid water, will be appropriate. For *diarrhœa*, the compound chalk mixture No. 58, and the application of the opiate liniment No. 132, and warm flannels to the stomach, are to be recommended. *Fastidious tastes* or "*longings*" may be indulged in when they are not for things strictly unwholesome, and antipathies need not generally be interfered with. *Affections of the bladder* will be benefited by the support of an abdominal belt (with perpendicular strips of macintosh), and it is of importance that the urine be not retained too long in the middle period of pregnancy, or it may be productive of retroversion of the womb and abortion. *General irritation* will be relieved by the saline mixture No. 112, with the addition of ten grains of bicarbonate of potash or of magnesia to each dose, and, if there be pain, five minims of laudanum also, and the application of hot fomentations or sitting in the warm hip bath. *Cough* is a frequent attendant on pregnancy, and a source of considerable annoyance: the mixtures No. 80 or 85, or Fuller's Spanish solution, No. 88, will be useful, and in the event of restlessness one or two of the pills No. 97 at bed-time: if the cough be accompanied by pain of the chest or headache, some leeches and an occasional mustard poultice should be applied over the sternum. *Cramp, pain and swelling of the legs, and varicose veins*, will be benefited by careful attention to the bowels, and sponging with cold vinegar and water; and in some cases the legs will require the application of a roller or a lace stocking. *Itching of the parts, and vaginal discharge*, are best remedied by the use of the hip bath, and injecting the passage with a weak solution of alum in water, or a weak infusion of green tea, or Goulard water, No. 142. *Frightful dreams and sleepless nights* may arise from the same causes as nightmare, *i. e.*, indigestible food in the stomach, or from pressure of the gravid uterus itself, accompanied by nervous irritation; although this state may exist to an alarming extent, it is nevertheless extraordinary how much women are refreshed and recruited by the snatches of sleep they obtain. The general health must be carefully attended to, and the disorder remedied according to the cause. *Headache and convulsions* may occur during pregnancy from any adventitious cause, or from hysterical affections; but when towards the latter part of pregnancy the pain is continuous or occurs severely at intervals, or is accompanied with a sense of confusion and giddiness, and an occasional indistinctness of vision, the most energetic depletory measures may be required, or convulsions of the most formidable kind may be the consequence. Therefore no time should be lost in obtaining medical advice. *Despondency.*—Many women who at other times are cheerful and happy, become during pregnancy low and desponding, and are oppressed with the most gloomy forebodings as to the result of their confinement. The rules as to the management of the general health should be observed,—solitude should be discouraged, and every effort should be made to rouse them from their state of depression, by cheerful society, exercise in the open air, change of scene, &c. In the majority of cases, where the health is otherwise good, they resume their vivacity towards the latter end of pregnancy, and as the time of labour approaches their spirits rise and their bodily activity increases to a degree they had not enjoyed for months before. "This is a wise and beneficent arrangement, by which, on the eve of suffering, the mind rises to meet the trial with cheerfulness and fortitude, which experience proves so materially to contribute to a happy result" (Montgomery).

There are many minor ailments, as heart-burn, water-brash, eruptions, sore mouth, &c., which occur during pregnancy, but which require no special treatment differing from that which they receive on other occasions, and which disappear immediately after delivery.

PROLAPSUS,

A protrusion or falling down of an internal surface, so that it appears externally: the term is generally applied to the anus, or the womb.

PROLAPSUS ANI, or protruding bowel, is a falling downwards or outwards of the extremity of the rectum: it is a common occurrence in infants, and often in the aged, and may happen at any period of life. It frequenly occurs in children from their being allowed to sit on their little perforated chairs too long, or from their being seated there to keep them quiet and clean; it may also be caused by intestinal irritation, in consequence of diarrhœa or worms. The bowel sometimes protrudes to the extent of three or four inches. In most instances it is easily returned by gentle pressure of the fingers, well smeared with lard or oil, but sometimes, where it has been down for any length of time, it becomes swollen, and is replaced with difficulty; at other times, where the protrusion has occurred often, although it may be pushed up with facility, it comes down again directly the fingers are withdrawn.

Treatment.—Where there is the slightest appearance of any protrusion of the gut, the child should not be allowed to sit on the chair longer than is sufficient for a motion, and then, if the bowels be not relieved, the child should be removed, and placed there again after a moderate interval. If the bowel be down, the nurse should lay the child on its back, with the hips a little elevated, and then with her finger press the protruded portion upwards. Should the protrusion be very considerable, the end of a small wax or tallow candle, oiled, should be passed up the gut, and the protruded portion pressed up with it, and the candle cautiously withdrawn, while the gut is pressed up by the fingers of the other hand. The effort must be steadily persisted in till the bowel is replaced, otherwise a portion of it may slough, and the child be destroyed. If the protrusion will not remain up, a T bandage should be put on, and half a small cork, rounded and covered with linen, fixed to the tail-piece, and be made to rest against the bowel. The bowels should be kept in an open state (so that the motions may be expelled without straining), and after their action, a solution of one grain of sulphate of zinc or sulphate of iron in an ounce of cold water should be injected up the rectum and repeated three times a day, and the loins and parts adjacent sponged with cold water. In all cases the child should be kept in a recumbent position until the bowel has recovered strength to retain its natural position. In elderly persons, the bowel is apt to protrude from want of tone in it: after a motion, they should lie down and press up the bowel, and an injection of sulphate of iron, as above, dissolved in decoction of oak-bark, should be used, and constipated bowels guarded against (see Dyspepsia).

Prolapsus of the womb.—For this it is advisable to consult the medical attendant; in the meantime, the foregoing injection, and sitting in a hip-bath, may be tried.

Rheumatism.

There are two varieties of Rheumatism,—the acute and the chronic. The one glides insensibly into the other, the latter being mostly the termination of the former.

Chronic rheumatism, however, frequently attacks persons who have had no preceding fever, or acute rheumatism.

Acute rheumatism commonly begins with a sense of weariness, shivering, and a quick pulse, accompanied by redness, heat, pain, and swelling, of (or surrounding) one or more of the larger joints, sometimes affecting several at the same time, but usually in succession. There is considerable heat of skin (inflammatory fever), followed by profuse sour-smelling perspiration. This mode of attacking one joint and going from that to another is characteristic of the disease. In some instances the first joint will be relieved when the attack passes on to another; in other cases there will be no mitigation of pain. In this way the disorder will affect the whole of the larger joints, and then the smaller, and subsequently it will occasionally attack the heart. The part first affected rarely continues the fixed seat of the disease.

Rheumatism is a constitutional disease depending on a morbid condition of the blood, and the poison would appear to be carried by the circulation from one portion of the fibrous tissues of the body to another. It is usually attended with great pain and suffering, the slightest movement causing extreme torture, and the patient lying in a state of helplessness more or less complete according to the extent of the disease.

There are two forms of acute rheumatism; the one more diffused and not immediately attacking the joint itself, though there is puffiness round the part, with red lines running from it, and subsequent œdema; the other, attacking the joint itself (or rather the synovial membrane surrounding it), at its onset, when the fluid is poured or effused into its cavity, and extensive red swelling of the joint ensues. In the first, the inflammatory fever is higher, the tongue more furred, the copious acid perspirations take place without affording relief to the sufferings, and the urine is high coloured, and deposits a brick-dust-looking sediment. It is in this form that the heart is more likely to be affected, the fibrous tissues of which are of similar structure to those of other muscles.

Where the joints are first affected, the fever is not so vehement, and moderates after they become swollen; it is this form which has been called rheumatic gout. The near resemblance between gout and rheumatism renders it probable that there may be a similarity of cause, as rheumatic gout partakes of both, the joints being principally affected. In gout, the poison separates itself from the blood, and is deposited in the form of chalk-stones. There is also an abundance of a peculiar acid in rheumatism, as is evidenced in the perspired matter.

The principal exciting causes of acute rheumatism are cold and moisture, and the disorder is, therefore, more prevalent among the labouring classes. Cold and damp, by obstructing perspiration, prevent the poisonous principle from passing off by the skin; thus it is retained, and circulates in the blood.

There is also a strong hereditary disposition to rheumatism in some families, where the individuals are liable to be affected by the disease from contingencies which would not influence others. It is not unfrequently caused by violent exercise or over exertion. Acute rheumatism is more likely to attack persons between the ages of fifteen and forty; when it occurs in younger persons, it is for the most part among such as have an hereditary predisposition to it, and these are the individuals prone to have the heart affected. As long as acute rheumatism is confined to the limbs, it is commonly void of danger, but when complicated with disease of the heart, its effects are much to be dreaded: the heart disease requires the most prompt and watchful attention.

Treatment.—As a general plan, the inflammatory fever is first to be subdued, after which, what are considered specific remedies should be administered, and lastly, restoratives and tonics are called for. At the very onset of the disease, and in those of full habit, general bleeding may be highly useful.

"Blood-letting in acute rheumatism should be practised with great caution, and its effects carefully observed; take away five or six ounces of blood, and if the pain be lessened and the sweats diminished, you are encouraged to bleed more boldly" (Graves).

In all cases an active purgative should be administered, as three grains of calomel followed by a compound senna draught, No. 20; confinement to bed should be enjoined, and diluent drinks taken liberally; the inflamed parts may be sponged with the evaporating lotion, No. 139, or with vinegar, spirits, and water, one part of each of the former and two of the latter, and if its coldness causes pain, it may be slightly warmed by putting a cup of it in a basin of warm water. A dose of the saline mixture with colchicum (No.111*a*) may be given every four hours, or one grain of Tartar emetic, one drachm of nitre, and half a drachm of laudanam mixed with a pint of whey, and two table-spoonfuls taken every four hours; and a full dose of Dover's powder at bed-time. In full habits it will be beneficial to exhibit from 3 to 5 grains of calomel every night with the Dover's powder, and every morning a compound senna draught, No. 20: this plan is said to arrest the disease much more rapidly, and is less likely to be followed by affection of the heart. Should the calomel affect the mouth it must be immediately discontinued, or, in the event of the colchicum acting too much on the stomach and bowels, it must be abandoned, and the saline with Dover's powder at night only be continued; but the probability is, that the disease by the foregoing means will be relieved. In the commencement, during the inflammatory stage, leeches may be applied to any of the joints which are most painful. At a later period, on recurrence of pain, blisters are to be preferred, as they remove the pain and swelling more quickly, and do not leave the joint weakened. At the last, if the swelling remains, friction of the joint with mercurial ointment and applying a roller will be beneficial; the mercury does not act through the medium of the system, but by its effects on the individual joint. Dr. Todd recommends, when the joints are swollen and painful, enveloping them in carded cotton wool, and covering the whole over with oiled silk. By this air-tight covering, the joints are kept in a vapour bath, and when the cotton is removed after twelve or twenty-four hours, the wool will be saturated with moisture which is strongly acid.

In less acute cases, where the urine is acid and loaded with brick-dust-looking sediment, Dr. Watson recommends a drachm of the liquor potassæ to be taken in divided doses daily, in whey or any light bitter infusion; or, what answers the same purpose, a scruple or 25 grains of bicarbonate of potash three times a day till the sediment ceases: the bowels should be kept freely open. Two ounces of nitre dissolved in a quart of water, and taken during the day, is highly spoken of, as also is fresh lemon-juice in doses of half an ounce every four hours. Whatever mode of treatment may have been previously adopted, when the limbs are yet somewhat swollen, the simple decoction of sarsaparilla with the hydriodate of potash (No. 13) will greatly assist the restoration to health. There are few diseases for which there are a greater number of popular remedies than for rheumatism: but, notwithstanding all kinds of treatment, it will run on for many weeks.

Chronic rheumatism is characterised by long-continued pain in one or more joints, mostly the larger ones. It is not usually attended with inflammation or fever, and is not necessarily preceded by the acute form. The disorder is sometimes confined to one joint, and at other times it will shift from one joint to another; in this manner it will often continue for a long time, and then gradually disappear, or leave the part swollen and tender. Painful recurrences are very apt to ensue, and now and then thickening of the joint, with permanent lameness, will follow.

When chronic rheumatism has continued for three or four months, it becomes a very intractable disease; indeed, there is scarcely any malady which tasks the ingenuity and tries the patience of all parties more. On some occasions there will be local heat, swelling and pain of the joint, and the pain will be increased on exposure to heat. These symptoms somewhat resemble those of the acute form, and may require the local application of leeches, spare diet, and refrigerating medicines; but this is an exception to the usual treatment of chronic rheumatism.

Treatment.—The most appropriate treatment is the use of such means as promote warmth to the surface: hence patients are relieved when warm in bed; and moderate perspiration should be induced by stimulant and diaphoretic medicines, which increase the action of the skin and have a stimulating effect on the nerves—such as guaiacum, colchicum, compound ipecacuanha powder, sulphur, turpentine, ginger, mustard, cod-liver oil, &c.; also, a moderate and steady action should be kept up from the bowels by a full discharge at least once daily. After all tendency to inflammation is subdued, the local affection will be benefited by friction, with or without stimulating anodyne liniments, also with tartar emetic ointment, or ointment of extract of colchicum. Opiates are frequently required to relieve pain and procure rest, and the best form is the Dover's powder. Guaiacum acts on the nerves and also on the skin, tending to remove chronic pains; it may be given in the form of tincture or powder, and is eminently useful in this disease, when there is no inflammatory action going on. Sulphur is a very popular remedy; it exerts a peculiar stimulant operation on the skin and alimentary canal, and is extremely active and penetrating in its nature, finding its way into many of the secretions, and most of the tissues of the body; as is evidenced by its elimination through the skin, urine, intestinal secretions, and the vapour of respiration. It may be given in scruple doses of the prepared (or milk of) sulphur, two or three times a day in milk; and at the same time 5 or 10 grains of Dover's powder should be taken at bed-time, or a combination of these in the electuary, No. 51, Chelsea pensioners, No. 52, or Dutch drops, No. 53.

Warm bathing is of great service, especially in salt or sea water, at the temperature of 100 degrees of Fahrenheit, as are also warm douches; but better still is the hot-air or hot-vapour bath, followed by hand-rubbing and shampooing.

As preventives of chronic rheumatism, warm clothing is of the first importance: flannel or fleecy hosiery should be worn next the skin. The digestion should be scrupulously attended to, not so much by medicine as by a well-regulated diet, and, as this is evidently a disease of debility, a nutritious but frugal diet should be allowed, regular but not violent exercise taken, and the shower bath used, or the surface of the body daily sponged with cold water.

MUSCULAR RHEUMATISM.—This often comes on suddenly, after exposure to a current of air, or cold bathing. It mostly affects the muscles of the shoulders, arms, neck (when it is called crick of the neck), and sides, more particularly the left. It is principally marked by severe pain when the muscles of those parts are used or exercised, as by raising the arm or twisting suddenly round. Although the pain of the side is very acute, it is not accompanied by the constitutional disturbance which occurs in pleurisy. This form is one of every-day occurrence, is for the most part purely local, and relievable by local means, as mustard poultice, or warm bran poultices, kept on for several hours, and friction with liniments, Nos. 132, 133, 134; and as the digestive organs are frequently in fault, the pills No. 15*a* will accelerate its departure.

As lumbago and sciatica are modifications of rheumatism, they will be treated of here.

LUMBAGO, or rheumatism of the loins, is an extremely painful disorder. The pain is aggravated by the action of stooping, sitting, or rising to the upright posture. The peculiar pain in these movements is in some measure distinctive of the disease.

Treatment.—Where lumbago is accompanied by fever, with violent pain which is increased by the warmth of the bed, immediate leeching or cupping is advisable. This should be followed by an aperient, as 3 grains of calomel and 5 or 10 grains of compound ipecacuanha powder at bed-time, and a compound senna draught, No. 20, the saline mixture with colchicum, No. 111*a*, three times a day, and the Dover's powder at night. Warm local applications afford great relief, as a large hot bran poultice applied over the loins, hot fermentations or the warm douche; that is, a stream of hot water directed with considerable force against the loins, which appears (Dr. Graves says) not only to be beneficial by the heat which it imparts, but also by its mechanical impulse. Where the lumbago is unaccompanied by fever and appears to be purely local, one drachm of the volatile tincture of guaiacum in water three times a day, with a dose of the Dover's powder at night, friction with a tea-spoonful or two of the opium or aconite liniment night and morning, or the application of a belladonna plaster, and keeping the bowels well regulated by the pills No. 15 *a*, or a compound senna draught combined with decoction of aloes (No. 21), every second morning, will, in general, afford relief; if not, the mixture of sarsaparilla with hydriodate of potash should be given. In more obstinate cases, acupuncture will often act like magic in giving ease: electricity and galvanism are also serviceable.

Sciatica is characterized by acute pain in the sciatic nerve. This nerve, the largest in the body, passes out of the pelvis down the back of the thigh to the ham, where it divides into branches, and descends as far as the inferior part of the leg. The pain is sometimes felt from (or even above) the place where the nerve emerges from the pelvis, and continues through its entire course; more commonly it extends along the hip and thigh only. The pain in some cases is constant, in others it comes on in paroxysms, and is often accompanied with so much suffering as materially to affect the general health.

On some occasions it is an inflammatory complaint, and will be relieved by cupping or the application of leeches in the course of the nerve; at other times it is evidently a part of rheumatism, and it is to be treated as such; now and then recurring in paroxysms it appears to be a neuralgic affection, and in this case, dry cupping, or the application of aconite liniment (No. 132) to the part, will be most useful: and a dose of morphia, as from half a grain to a grain, should be given on or before the accession of the paroxysm, and in the interval large doses of sesquicarbonate of iron, as from one scruple to a drachm, every three or four hours, and then alternated with quinine for a short time: the bowels must be kept regulated by a grain or two of blue pill every night, and the compound decoction of aloes in the morning. Where a disordered state of the kidney is suspected, spirits of turpentine, in doses of from fifteen minims to half a drachm three times a day, may be useful.

In spite of the best-directed means, sciatica, as well as lumbago, is apt to become chronic; in such cases the Bath and Buxton and Harrowgate waters will be serviceable, and where change of climate is advisable the natural hot baths of Bagnères or Barèges are to be recommended.

"Persons subject to lumbago ought, as much as possible, to avoid remaining for any length of time in a flexed or stooping position, particularly if exposed to cold; many are attacked while drawing on their boots; this may surely be avoided by using boot-hooks fourteen inches long, so that the boot and thigh may be nearly in the same line when the effort to draw on the boot is made. Persons in dread of lumbago and sciatica ought always to wear stout drawers; the waistband should be broad, and consist of a strong, warm, yet elastic material, so as to allow it to be worn tight without inconvenience" (Graves).

RINGWORM—SCALD OR SCALED HEAD,

Is a disease of the hairy scalp, of which there are three varieties.

The first appears in the form of a smooth white circular bald patch or patches. The second is an eruption of scaly pustules clustered together in round elevated patches, the hairs being brittle and discoloured; a roughness of the skin, with a brown scale, generally precedes the distinct appearance of the pustules: this is the most obstinate form. The third appears in the form of straw-coloured scales or crusts, which fall off, leaving a number of cup-shaped ulcers clustered together like honeycomb, which quickly spread and soon involve the whole scalp, and not unfrequently extend to the neck and forehead.

The predisposing cause of ringworm is derangement of the general health from ill feeding, want of cleanliness, and scrofula. The exciting cause is contagion or contact with others affected with the disease; it is also propagated by combs and hair-brushes. It is mostly met with in children, but not exclusively confined to them. The disease has its seat in the roots of the hair, and is said to be attended by the development of parasitic plants.

Treatment.—The hair should be cut close, and the heap washed daily with soap and water, and dried carefully with a fine towel, and all the moisture absorbed. In the first form the bald patch should be moistened with a strong solution of lunar caustic, a drachm to an ounce of water,—by means of a hair pencil,and the alterative powder No. 93 should be given every night or every second night, and the system upheld by a nourishing diet, and some of the bitter or chalybeate tonics, as mixtures Nos. 122, 123, 124, or the steel wine, and by exercise in the open air, &c. In the second variety the hair should be cut close, and the whole surface fomented well with flannels wrung out of hot water, and a bread-and-water poultice, or the water-dressing, applied warm every night,—the hard crusts or scabs being removed. Should there be much discharge, the scalp should be dabbed twice or thrice a day with a solution of sulphate of zinc, two or three grains to an ounce of water; if there be no discharge an ointment of one drachm of finely powdered sulphate of zinc to an ounce of lard may be used, or after the morning washing a lotion of two drachms of the bicarbonate of potash to a pint of water, or after a time two drachms of sulphuret of potash, two drachms of white soap, and half a pint of lime water. These means failing, the clusters of eruption should be touched freely with the nitro-muriatic acid by means of a piece of moderate-sized cord, once in three or four days, and anointed immediately with the sulphate of zinc ointment, or with a drachm of calomel and an ounce of lard mixed; or after a time with equal parts of the sulphur and the liquid tar ointments mixed, and to each ounce six or eight drops of sulphuric acid added. The head is better kept uncovered. In the third variety the same mode of treatment should be made use of: at intervals all local treatment should be suspended for a time, except the daily ablution, by which the exact state of the scalp may be observed: for it often happens that by the constant use of stimulant applications irritation is kept up. By great attention to local and personal cleanliness, a nutritious diet, proper clothing, and air and exercise, the parts will gradually recover as the system becomes invigorated.

Rupture or Hernia

Is a protrusion of some of the viscera of the abdomen out of their natural cavity, or of a portion of the bowels out of the belly: unless there be a wound on the surface, the protruded viscera are always covered by the integuments and natural tissues. There are four situations where rupture is commonly met with,—1st. *Inguinal Hernia*, in the groin, above the fold, or in the middle of a line running from the hip to the pubes; 2ndly. *Femoral Hernia*, below the fold in the groin at the upper part of the thigh; 3rdly. *Navel rupture*, at the navel; 4thly. *Ventral*, which is least common, at the sides or middle of the belly, below the navel. Inguinal rupture is the most frequent; next to this femoral. Navel rupture is not unusual with children at birth, (called starting of the navel,) or in stout elderly persons, more particularly women who have borne many children.

Symptoms.—A swelling perhaps not larger than half a nut in either of the above situations, which recedes within the abdomen when in the recumbent posture, is under most circumstances distinctive of rupture. When the rupture contains intestine only, there is a gurgling noise on passing it back into the abdomen; when the omentum also is protruded it has a more doughy feel. Persons who are ruptured, (and many are so unconsciously) experience a dragging sensation at the pit of the stomach, and a degree of nausea and other symptoms of dyspepsia. The rupture is not discovered perhaps till on making some great effort, as lifting a heavy weight, attention is called to the lump in the groin, which has protruded more, and is succeeded by faintness, sickness, and vomiting, continuing till the protrusion is returned. It is said that one out of every ten persons is ruptured; but not more than a fourth of those ruptured are women, as from the nature of their avocations they are not so liable to the disorder. In women femoral rupture is the most common. When inguinal rupture is of long standing and unattended to, it descends into the scrotum in men, and into one of labia pudendi in women.

Treatment.—When a person discovers a swelling in either of the aforementioned situations he should lose no time in applying to a surgeon, and, if ruptured, in obtaining a truss to support it, for he is never safe without one: it is of the greatest possible importance that the truss should fit well, and be worn both night and day, if a cure is hoped for: except when sponging the part with cold water, to keep the skin from being chafed or abraded, the pad should be covered with a piece of fine flannel or kerseymere, and the part dusted with starch, flour, or arrowroot powder. It is advisable to have two trusses of the same size and strength, so that in the event of one requiring repair the other may be made use of. "For if even for a day the person goes about without his truss, the advantage gained by six or eight months' previous wear will be lost." "The danger of a hernia is greater in proportion to the smallness of its size, and it is more likely to be strangulated. A young person may be cured at the end of three years, by wearing a truss continuously for that time; in an older person above 40 years of age, there is not much hope of effecting a cure, yet even in these cases a gradual reduction of the hernia will sometimes be produced." If a person who has a rupture does not wear a truss, or if the truss he wears does not keep the bowel up in its place, but allows it to slip down by the side of the pad either from the instrument not fitting perfectly, or not being strong enough to resist the constant exertion of daily labour, or if the truss be broken, as is very frequently the case, he goes about at the risk of his life. It may, indeed, happen that a person will have a rupture for years, or even for his whole life, and yet wear no truss, and when he lies down the rupture may recede, or it may continue down and be incapable of being returned at all, and yet he may suffer no inconvenience beyond a little occasional lassitude. But this is the exception, not the rule, and from some trifling circumstance the bowel may become strangulated, and the person will die if not relieved by the means hereafter mentioned, or on failure of them by an operation which is always hazardous to life. Persons who have ruptures should be most careful to keep their bowels regular so as to be moved daily. When a person has been costive two or three days, and becomes violently and frequently sick, eventually throwing up something like fæculent and very offensive matter, with a sense of tightness round the middle, accompanied by extreme nausea, uneasiness, and anxiety, there is great probability that rupture is the cause of this train of symptoms, and rigid inquiry should be made whether there is swelling in the groin or its neighbourhood, or at the navel or elsewhere about the abdomen, and if so, how long it has existed, and whether the patient has worn a truss or not; or whether the rupture has been ever fixed and unreturnable before, and accompanied by the same train of symptoms. It now and then happens that persons who are aware of their complaint, and do not wear a truss, have some difficulty in getting their rupture up, and feel sickish and uncomfortable from its being larger and less readily returned than usual. They often acquire some dexterity in handling the part, and after more or less effort replace it, and therefore often rely on their own capabilities till they get into a dangerous condition. In this case a medical man should be sent for immediately. While he is being fetched the patient may be put into a warm bath up to his neck, and remain there till he feels faint; he should then, according to his own method, attempt to put the rupture up, by pressing it gently if it be in the groin, or by lifting it up if it be in the scrotum, and squeezing it moderately towards the belly,—but no violence should be used. If this does not succeed, cold may be applied over the swelling, by half filling a bladder with pounded ice, or the freezing mixture, consisting of equal quantities of table salt, nitre and sal ammoniac powdered, and a little water added: either of these, if kept on the part some hours, will occasionally cause the return of the rupture: but they require to be used with caution, as, if the skin becomes frozen, it may mortify. If neither ice nor the materials for the freezing mixture can be obtained, a wet rag may be put on the part, and evaporation encouraged by passing over it a continued stream of air from a pair of bellows, and re-wetting the cloth as it dries; by this means almost as great a degree of cold may be produced as by ice. It has been proposed to reverse the position of the body, by way of accelerating the return of the rupture, or the patient may be placed on an inclined plane (made by reversing a chair) with his head downwards. Bleeding to faintness whilst standing upright, and then lying down, has sometimes succeeded, but this should only be done by a medical man:—an active purgative enema may be carefully administered.

Congenital hernia: Hernia of the navel in children immediately after birth.—The swelling or hernia should be pressed into the little navel hole, and a half sphere of ivory, cork, or smoothed wood, placed over it, and fastened on with two or three cross slips of sticking plaster, a longer strip being passed round nearly from one side of the spine to the other: the plasters should be resumed whenever they become loose. Rupture of the groin is not so common in children. For the first three months little more can be done than dabbing the part with cold water and keeping the child in the recumbent posture; after that time a light truss may be worn with every probability of curing it. Salmon and Ody are mentioned by Sir A. Cooper as good truss makers, and Bigg, of Leicester Square, by Mr. South. Coles, of Charing Cross, adapts them well also for young children; for adults, Egg, of Piccadilly, makes a very good truss.

SCARLET FEVER:

A contagious fever, usually accompanied by a rash and sore-throat.

The disease is described as of three varieties; simple scarlatina, in which there is a florid rash with little or no affection of the throat; scarlatina anginosa, in which both the skin and the throat are involved; and malignant scarlatina, in which the disease of the throat is most prominent; this last has been denominated malignant sore throat. These, it should be borne in mind, are all derived from the same source. "The malignant sore-throat may be caught from a patient who has mild scarlet fever; and mild scarlet fever may in like manner be contracted from one who is labouring under malignant sore-throat. These forms graduate insensibly towards each other" (Watson's Lectures.)

SIMPLE SCARLET FEVER generally commences with chills, nausea, sometimes vomiting, pains in the head and limbs, a hot skin, restlessness, and extreme lassitude. On the second day mostly, a bright scarlet efflorescence appears on the face and neck, and at length extends over the entire surface. At first it comes out in patches of red points, which gradually unite, and in a few hours the redness becomes universal. The skin is perceptibly rough to the touch, and in some parts there are also minute vesicles. The eruption begins to fade from about the fourth or fifth day from its appearance, and disappears by the seventh or eighth. The cuticle then desquamates in scurf or scales from the face and body, and in large flakes from the hands and extremities. The tongue is coated at the onset by a white film, with red points (the papillæ) projecting, and appears at first like a white strawberry, and latterly like a florid scarlet one. The fever subsides with the rash, leaving the patient very weak.

In SCARLATINA ANGINOSA, or scarlet fever with sore-throat, the throat is affected from the first; indeed, sometimes before the appearance of the eruption. The neck is stiff, the glands and all the neighbouaing parts are swollen, and the lining membrane of the mouth and fauces is of a crimson colour, with ash-coloured spots about the tonsils. The eruption on the skin is of a deeper colour than in the simple scarlet fever, and spreads more rapidly over the surface.

It often happens that sore-throat of a similar character will occur unaccompanied and unfollowed by any eruption, at a time when scarlet fever is prevalent.

MALIGNANT SCARLET FEVER.—In this the rash appears in irregular patches of a more dusky hue, and will sometimes recede and again reappear; intense inflammation of the throat occurs at the very onset of the disease, and the throat soon becomes foul and sloughy, with great enlargement of the salivary glands, and considerable swelling of the neck and all the neighbouring parts; and the nostrils are so stuffed and swollen internally, that the breathing is interfered with. The acrid discharge from the throat and nostrils excoriates the sides of the nose and lips, extending inside to the larynx and trachea, and sometimes causing sudden death from croup, and also to the intestinal canal, causing acrimonious and often bloody purging, and excoriation of the anus. The tongue, after being clean and red, will become dry, hard, and brown. The condition of the throat gives rise to the most formidable symptoms, the poisonous secretion reinoculating the system, and sometimes passing up the Eustachian tube and destroying the organ of hearing, so that fluids in the act of being swallowed will run out at the ear.

The progress of the disorder, and its degree of severity and danger, differ very much in different cases. On some occasions the deviation from a state of health is so slight as scarcely to be called disease; on others, the disorder defies all treatment. Again, although the patient may have recovered from the fever itself, its consequences are often most serious; it gives rise frequently to permanent bad health, particularly in children of a scrofulous habit, producing pain and swelling of the joints, suppuration of the glands of the neck, discharges from the ear, chronic inflammation of the eyes and eyelids, various eruptions, and anasarca or dropsy. When the desquamation is over, and the new surface has become in some degree firm, the danger is passed.

The exciting cause of scarlet fever is contagion, which is of a very subtle and widely diffusible character; few children escape the disease, and as it seldom attacks the same individual a second time it is comparatively rare in adult life.

The contagion lurks about an apartment and adheres to clothes a very long time, notwithstanding the means which may be taken to purify them, so that no definite opinion can be given as to the period when persons are safe from its effects.

The disease has been confused with measles. Measles usually commence with symptoms of catarrh, such as cough, sneezing, and running from the nose and eyes, which precede the eruption. In scarlet fever there is not usually cough, but the affection of the throat and the peculiar appearance of the tongue are characteristic. The rash in measles is somewhat elevated and defined, and occurs in patches of a curved form, with intervening spaces of healthy skin; that of scarlet fever is more diffused over the surface throughout.

The favourable symptoms are,—the fever and affection of the throat being slight, and both being relieved on the appearance of the eruption, moderate bleeding from the nose of a florid red colour, or the occurrence of slight diarrhœa. Unfavourable symptoms are the eruption coming out in patches and being preceded by great anxiety, nausea, and vomiting, the throat becoming of a dark purple colour, extreme prostration of strength, swelling of the neck, and the occurrence of delirium and coma.

Treatment.—In the simple form, giving some mild aperient (as Mixture 38), confinement to the house in a cool fresh air, taking diluent drinks, and observing a spare diet, are essential. In the second form, at the commencement, the same treatment as above should be adopted, followed by the saline No. 28, or 111 or 112, and if there be feebleness, the following:—

Take of Solution of Acetate of Ammonia, two ounces; Carbonate of Ammonia, two scruples to a drachm; Syrup, half an ounce; Water, sufficient to make half a pint mixture, of which a child may take a dessert-spoonful every four hours.

The surface should be sponged with tepid or cold water, at intervals three or four times a day, and fresh air freely admitted; the head should be shaved and kept cool by the same means, or by ice in a bladder, and the following drinks should be administered:—

Solution of Chlorine, one drachm and a half; Syrup of Lemon, half an ounce; Water, half a pint; Mix. Or one drachm of the chlorate of potash may be dissolved in a pint of water, and sweetened with sugar; a table spoonful to be taken now and then.

If there be much swelling of the throat externally, accompanied by headache, the application of two, three, or four leeches unless there be great weakness, will be useful, otherwise a blister or large bran or linseed-meal poultice may be applied. The throat should be gargled with the gargle No. 154, or one drachm of common salt dissolved in half a pint of water; if the child be unable to gargle, the fluid may then be injected through the nostrils, or against the fauces, by means of a syringe or elastic gum bottle. The diet at first should be mild and unstimulating; latterly, beef tea, chicken broth, &c. may be taken. The principles of treatment are, not to interfere unnecessarily; to regulate the bowels by mild aperients, and diminish the heat of the surface by cold or tepid ablution and the free circulation of fresh cool air: if the swelling of the neck be great, leeches may be applied, but blood should be taken with caution lest prostration should ensue. It must be borne in mind that the system is labouring under the influence of a morbid poison, which we cannot expel from the blood, but the dangerous effects of which are to be watched and obviated by appropriate means. We must support the strength by gentle stimulants and nutritive drinks, gradually increase the solidity of the food, and guard against exposure to sudden variations of temperature, until desquamation of the skin has taken place, which will be assisted by two or three tepid baths at intervals of two or three days. In the most malignant form of scarlet fever little is to be done by any kind of active measures, the impression of the contagious poison on the body, and particularly upon the nervous system, seeming to defy all treatment. "If we can save such patients at all, it must be by the liberal administration of wine and bark, to sustain the flagging powers until the deadly agency of the poison in some measure passes away. When the patient is not killed by the first violence of the contagion, the system is reinoculated with the poisonous secretion from the throat, wine and bark must be diligently and watchfully given, and the throat injected or gargled by the means before mentioned, &c., &c., and the most vigilant care observed for some time, should convalescence fortunately ensue' (Watson's Lectures.)

Dropsy succeeding scarlet fever usually appears ten days or a fortnight after the subsidence of the fever, and is characterized by œdematous swelling of the legs and sometimes of the belly, with lassitude, occasionally difficulty of breathing, pain in the loins, and a small quantity of turbid urine. It is often the consequence of neglect or imprudence, as by too early exposure to cold or damp, or partaking too early of solid animal food. If the symptoms be slight, the dropsy may be removed by gentle purgatives, as the compound powder of jalap in efficient doses, aided by the daily use of the tepid bath and moderate friction. If there be tenderness at the pit of the stomach, with cough, the application of two or three leeches will be beneficial, or if there be pain in the loins, the leeches may be applied there: as dropsy more frequently occurs after mild than severe cases of scarlet fever, this treatment will commonly be borne well. The imperial drink, with one drachm of the nitrate of potash dissolved in a pint of water, will be useful.

As a prophylactic or preventive of scarlet fever, belladonna has been eulogised: five grains of the extract may be dissolved in 10 ounces of water, of which a child may take half a drachm, and an adult two drachms twice a day: it should be taken before exposure to the contagion: it is said that if it does not absolutely prevent the disease, it will render it mild. Dr. Neligan says that experience has not confirmed the anticipations which were confidently put forward at first. There is no doubt, however, of its utility to a certain extent.

SCROFULA OR KING'S EVIL.

Scrofula is a diseased state of the constitution, characterised by want of power or tone, and the formation of indolent glandular tumours in various parts of the body, more particularly in the neck, behind the ears, and under the chin, which eventually suppurate and discharge a white curdled matter, something like moist old cheese. These tumours appear more frequently in the neck, perhaps because they are more exposed to the vicissitudes of the atmosphere. Tumid glands of the neck are not necessarily scrofulous; they may have arisen from adventitious causes, as teething, or common cold, and frequently appear after scarlatina. If, however, there be many glands swollen without any obvious cause, they will afford strong grounds for suspicion that the constitution is not free from scrofulous taint; but unless these suppurate and contain scrofulous matter, their mere presence does not constitute disease.

The scrofulous disposition is generally marked by certain peculiarities. There is a want of muscular power, an appearance of puffiness or plumpness, a paleness of the surface of the body not extending to the face, which is often fair and florid, a tumid upper lip, prominent belly, discharges from the nose, eyes, and ears, a great disposition to catarrh, so as often to impart a huskiness to the voice, enlargement of the tonsils, irregular bowels, ill-performed digestion, and a liability to eruptive diseases. The colour of the hair is very variable, but for the most part it inclines to a dark tint—"out of 9000, a little over 32 per cent. had light hair and eyes" (Phillips, page 32.)

The absence of vascular and muscular energy often causes the scrofulous child to lie and sit about much, and indisposes him to enter into the energetic games of his play-fellows. It is commonly said that scrofulous children have a precocious intellect, or possess an unusual degree of mental quickness. There is much deception on this head. It often happens, indeed, that to compensate for the deficient muscular and bodily power of their children, persons in better circumstances cultivate their minds more; but in the cottages of the poor, the child with a scrofulous taint will be found pallid, puffy, dull, and listless, with the skin dry, harsh, and too commonly covered with eruptions, the mucous surfaces deranged, the attention not easily excited, and the mind greatly wanting in intelligence. However marked the constitutional peculiarity in those disposed to scrofula may be, the disease proceeds very slowly before the glands suppurate, and in the interval favourable or unfavourable circumstances may be experienced: on the one hand, the constitution may improve and the glandular swelling subside; on the other, the ailing child's life may be cut short by some other disease before the proof of scrofula is complete. It does not necessarily follow, therefore, that individuals having that particular character of the constitution must become victims of the disease, although it may be brought into activity under accidental circumstances. Half a dozen women get blows on their breast, and five get well; but the sixth having a scrofulous disposition, a tumour and disease follow: or a boy may possess a feeble frame with a predisposition to scrofula,—he receives a blow on his knee, and scrofulous inflammation of the joint follows; a dozen other boys get similar injuries, inflammation succeeds, but subsides under ordinary treatment.

In scrofulous persons there is a want of tone and energy in the solids, their muscular power is quickly exhausted, and they are incapable of sustained exertion. "That splendid-looking corps of Dutch grenadiers which constituted when on parade so distinguished an ornament of Napoleon's army, and which was said to be greatly tainted with scrofula, suffered more from fatigue, pain, and hunger, during the disastrous retreat from Moscow, than any other portion of the French army" (Phillips, p. 35.)

Upon whatever temperament the disordered habit which we call scrofula may engraft itself, there will always be found dyspepsia from the disordered condition of the mucous membrane of the alimentary canal. In the offspring of dyspeptic, hypochondriacal, or cachectic parents, and in children who have been badly nursed, brought up by hand, improperly fed, or reared in the impure air of crowded towns, symptoms of disorder of the function of digestion early manifest themselves, generally between the first and tenth years, often commencing with the first dentition, which is commonly painful and difficult. The condition favourable to the development of scrofula is the result of imperfect nutrition.

Scrofula usually shews itself between the ages of three and seven, but it may appear at any age from the first year to puberty, after which it seldom makes its first attack. It is more prevalent in climates where there are great vicissitudes of temperature combined with moisture, whereas it is very rare in very hot or very cold climates, where the air is generally dry. It has been often thought to be a disease peculiar to England, but it is not so; on the contrary, there is no country so free from the disease as England and Wales. The registered mortality from scrofula amounts only to 8 in 100,000, on the gross population, and unless scrofula degenerates into some other disease its actual prevalence, as well as its influence in the destruction of human life in Great Britain, is not very formidable.

Causes.—Hereditary predisposition. A deteriotated state of health in the parent from any cause, of such an extent as to produce a condition of cachexy, may give rise to the scrofulous constitution in the offspring. This predisposition to the disease may or may not be evolved accordingly as the circumstances in which the child is placed are favourable or unfavourable for its production. A feeble child exposed to the causes of scrofula will be more likely to become the subject of the disease, than a child who possesses more power of resistance. Bad air, bad food, a cold and damp atmosphere, deficient clothing, or anything that enfeebles the system, may rouse the latent disease into activity. The disease is not contagious, neither is it communicable by inoculation. Food exercises the most important influence in the production of scrofula, and the seeds of that deterioration of the bodily frame which leads to the production of the disease are sown in infancy or early life. The delicate digestive organs of a child are only fitted for the conversion of such food as is easily assimilated, and if the food be not appropriate, or if it be not given in a proper way, it must act injuriously upon nutrition: as might be expected, therefore, a larger portion of scrofulous children are found among those brought up by hand, than among those who are suckled by a mother, or even by a foster-mother or wet-nurse.

Prevention of Scrofula.—Parties marrying should be in sound health. Where the disease exists in the mother, great care should be taken to support the general health during pregnancy, by suitable diet, air, and exercise (see Pregnancy.) At the birth of the child, if the mother is not capable of fulfilling her maternal duties, a healthy wet-nurse should be procured, and the child sustained on breast milk until it has at least four teeth, or attained the age of ten months, and then fed on milk, bread, and broths. Milk impregnated with mutton suet, by enclosing it in a bag and simmering it in the milk, is recommended by Dr. Paris. The child should be warmly clothed, regularly exercised in the open air when the weather permits, encouraged to exercise itself by crawling on the floor, bathed once a day in salt and water, tepid or otherwise according to the season of the year, and well rubbed and dried afterwards. The nursery, &c., should be spacious, dry, warm, and well ventilated. A country residence is to be preferred to a town one. After the teeth are all cut, the dinner should consist of meat and well-dressed vegetables,with a sufficiency of milk and bread at other meals. There is no particular article of food which directly tends to produce scrofula.

Treatment.—The touch of a king was formerly resorted to for the cure of the disease; hence the name king's-evil. This practice is said to have originated with Edward the Confessor: this and many other superstitious practices for its cure are now become obsolete. Nine out of ten scrofulous patients who suffer from enlarged glands in the neck get well under almost any rational plan of treatment. The principles to be had in view are to improve the general health, and to promote the dispersion of swollen glands and the healing of ulcers. These are to be effected by a nutritious diet adapted to the age of the patient, of which animal food should always constitute a liberal part, with a portion of well-dressed vegetables for dinner, with sound beer, or a small quantity of wine; for breakfast, plenty of milk diluted with water, or weak tea or coffee, with well baked bread and butter; or a small portion of meat, fish, or an egg, may be allowed, if evidently required. Over-feeding, however, must be scrupulously guarded against. The clothing should be warm according to the season, but never oppressive; perhaps flannel next the skin regulates the temperature of the surface best. The use of the shower bath, tepid or cold, with a portion of salt in the water, is advisable, or sponging the skin, which should be well rubbed with dry coarse towels or horse-hair gloves. Exercise should be taken daily in the open air when the weather permits, and in the autumnal months sea bathing. The digestive functions should be carefully regulated, where medicine is required, by the powder No. 93, or the pills No. 16 or 42, or the alkaline solution with rhubarb is an excellent alterative and antiscrofulous medicine. Of tonics, the preparations of iron are most useful, as the steel wine, or Mixtures Nos. 128, 129*a*, 129*b*. Perhaps the most beneficial practice is to alternate the steel wine with cod-liver oil at monthly intervals, occasionally changing them for some other tonic, as the preparations of bark, Nos. 121, 125, with or without the mineral acids, Nos. 126, 127, or the decoction of sarsaparilla with iodide of potassium No. 13, or the syrup of iodide of iron of the Pharmacopœia, or the pills of iodide of iron with bark, No. 131, omitting medicine now and then altogether. The swollen glands may be brushed over carefully with tincture of iodine, or rubbed with the ointment of iodide of potassium, or with mercurial ointment. When they are painful, a warm poultice or water dressing (warm) will be soothing. At the sea side, poultices of sea-weed well bruised will be an excellent application. Scrofulous ulcers are proverbially indolent, and are to be treated through the medium of the constitution and by local stimulants.

Rickets is for the most part associated with scrofula, and consists in a deficiency of earthy matter in the bones, which, consequently, are more or less flexible. The extremities of the long bones, as at the wrists and ankles, are enlarged, as is also the head. Its causes are the same as those of scrofula, as must also be its mode of treatment, except that, as the horizontal posture will require to be observed, shampooing and friction must be substituted for exercise, and air taken in a Bath chair on an inclined plane. It is of considerable importance that females should lie down while under treatment for rickets, or the pelvis will become distorted, and they will be incapacitated from bearing living children.

In scrofulous swellings of the knee, and hip-joint disease, the same principles of treatment are to be observed; but they should be placed under the care of the surgeon without delay. This subject may be suitably concluded in Mr. Benjamin Phillips's words, that "good food, good air, good clothing, and good exercise, are the efficient remedies for scrofula."

Scurvy.

A disease characterised by extreme debility, bloated and pale complexion, spongy gums, livid spots on the skin, offensive breath, œdematous swellings in the legs, hemorrhages from the mouth, nose, stomach, and bowels; foul ulcers, and extremely fœtid urine and stools. As the disease proceeds, the debility increases,—there is great difficulty of breathing, the gums often slough, bruise-like marks appear on the skin from effusion of blood underneath, the skin is dry and rough and of a dusky hue, the bowels are mostly constipated, and the patient, unless speedily relieved, dies from exhaustion.

Cause.—The deprivation of succulent vegetables, associated with fatigue, cold, moisture, and impure air. It chiefly affects sailors, or persons confined in close, damp situations or besieged towns, or such as are ill fed.

Treatment.—A liberal diet of fresh meat with fresh succulent vegetables, of which potatoes stand first, exercise in the open air, and tepid bathing ; the exhibition of occasional mild aperients, as the powder No. 31, or pills No. 42, 42*a*, and perhaps tonics, as the mixtures No. 124-125. Where vegetables are not procurable, a portion of fresh lemon juice may be given daily. It has recently been shown by Dr. Garrod, that in scurvy the blood is deficient in potash, and that the disease has been cured by the bicarbonate of potash, where vegetables could not be obtained. The tartrate or chlorate of potash answers the same purpose ; a drachm of either, dissolved in a pint of water, should be taken daily. The waters of Harrowgate, in cases of long standing, are useful.

SHINGLES

Is a disease of the skin (a variety of Herpes) characterised by the appearance of vesicles in distinct clusters, on inflamed bases, extending a little beyond the margin of each cluster. The eruption of shingles is preceded for two or three days, when it is extensive, by considerable constitutional disorder,—as languor, loss of appetite, shiverings, headache, sickness, and a frequent pulse,—accompanied by a sensation of heat and tingling in the skin ; sometimes by severe deep-seated pain in the chest, and a sensation as if hot needles were run into the parts affected. The lymph of the vesicles, which is first clear and colourless, becomes gradually milky, and ultimately concretes into scabs ; but in some cases a copious discharge of it takes place, and tedious ulceration follows. In some instances, as the vesicles concrete, and the crusts fall off in one part, fresh crops arise in the vicinity ; and thus the eruption creeps over a considerable part of the skin. Sometimes the constitutional symptoms are so slight as scarcely to be noticed ; and the attention of the patient is aroused by the appearance of red patches, with numerous small elevations, clustered together, which, in the course of twenty-four hours, enlarge to the size of small pearls, and become filled with a perfectly transparent limpid fluid. Other clusters arise in succession for three or four days, extending towards the spine at one extremity, and to the breast-bone at the other, forming, as it were, a band round the waist. "In some cases the clusters of eruption begin on the loins, and extend downwards to the thighs and knees." The clusters never completely run into each other, or unite together. As the scabs fall off from the twelfth to the fourteenth day, they leave the surface of the skin in a red and tender state, with cicatrices and pits where the ulceration has been. Shingles are not contagious, and may occur more than once to the same person. The disease is for the most part slight, and runs its course in three weeks.

The causes of shingles are not always apparent. It occurs most frequently in the summer and autumn, and seems occasionally to arise from exposure to cold after violent exercise: sometimes it has appeared to be critical, when succeeding to bowel complaints or chronic pains of the chest. Young persons from twelve to twenty-five years of age are most frequently the subjects of it, although the aged are not exempt from it, and suffer severely from the pains which accompany it.

Treatment.—Its course cannot be shortened by medicine. Gentle laxatives, with salines and calmatives, may be tried, as the mixture No. 27, with a drachm of tincture of henbane instead of the laudanum; or it may be given alternately with the mixture No. 28. If there be deep-seated pain, from five to ten grains of the compound ipecacuanha powder may be taken at bed-time, and a light nutritious diet observed. The eruption may be bathed with the lotion No. 139 in the first instance, and afterwards No. 144 or 145. When the vesicles are abraded by the friction of the clothes, a glutinous discharge takes place, which occasions the linen to adhere to the part, and is a source of great discomfort: the parts should then be dressed with the ointment of oxide of zinc spread very thin on lint. Persons in advanced life may require light tonics, as the mixtures No. 118, 119, 122, 123, and change of air, to accelerate their convalescence.

SKIN DISEASES.

The eruptive fevers, as—scarlatina, measles &c., and most of the specific diseases of the skin,—as erysipelas, boils, itch, leprosy, and shingles, are treated of under their proper and more common names. It remains to mention some less marked ones under the denominations of rashes, pimples, and eruptions.

Rashes.

A rash, or inflammatory blush of the skin, may occur in any part of the body in red patches, or in nearly continuous redness, accompanied by increased heat and irritation, and sometimes by swelling, pain, and inflammation. Rashes are not contagious.

RED RASHES OR BLOTCHES.—The former are of great variety and duration,—as erythema, excoriations, abrasions. Red blotches on the face are generally connected with some constitutional derangement and dyspepsia, which should be treated accordingly, and the blotches dabbed with camphorated spirits, or the mercurial lotion No. 155, two or three times a day, and the water for washing rendered softer by macerating a pint of bran in every gallon of water, and straining it.

ROSE RASH appears in patches of a deep red colour, ushered in by a slight degree of fever. It is common to children during dentition, (tooth rash) appearing on the surface generally, but more particularly about the face, and arising from intestinal irritation. In adults it is common in summer and autumn. The more frequent causes are heat of weather, fatigue, drinking largely of cold water when the individual is heated, or eating indigestible food. It is usually attended with itching, and sometimes with pain and redness of the throat.

The remedies are mild aperients, as the compound powder of rhubarb and magnesia No 31*a*, cooling drinks, and tepid baths. If it arises from fatigue, tranquillity in bed with light covering should be enjoined.

Rose rash sometimes occurs during the eruptive fever of small-pox, and now and then in a congeries of small dots or patches after vaccination.

Pimply eruptions.—Dry pimples.

Red gum or red gown generally attacks infants at the breast, and is characterised by an eruption of minute hard pimples, which are sometimes pale, at other times slightly red, attended with itching. It requires no treatment beyond the tepid bath.

Lichen.—There is great variety in this form of eruption, depending on the state of the constitution. In the robust, it is bright red; in the feeble, of a bluish or livid colour; in some persons, it is developed round the roots of the hair; in others, in circular patches faded or pale in the centre. The irritating affection called prickly heat is an example of lichen.

Prurigo or itching is characterised by an eruption of small pimples of the natural colour of the skin. It is a chronic affection lasting for months and years, and causing great discomfort, not to say misery. The severer form is accompanied by a sensation like the creeping of ants, or the stinging of insects. A third form occurs in elderly persons without any obvious cause, and is the most obstinate, often enduring for the rest of life. "It has been the scourge of several distinguished persons; as Plato, Charles the Fifth, and Charles the Ninth of France." "A lady bearing the outward appearance of health, describing the torture which she experienced, said that the sensation caused by a sponge dipped in scalding water, and immediately applied to the skin, was perfect bliss when compared with the pungent suffering caused by this itching"(Erasmus Wilson.)

Treatment.—"For itching of the skin, both in the infant and the adult, an ounce of lemon-juice mixed with a pint of water, or vinegar used in the same proportion, form very useful lotions. When these means have failed, try the following:—Take of dilute pyroligneous acid half an ounce, camphor in powder half a drachm, rose water a pint: mix." (Erasmus Wilson.) The lotion No. 141, or two drachms of sulphuret of potash to a pint of water, may be tried, and in inveterate cases the mercurial lotion No. 155, to which one or two drachms of hydrocyanic acid may be added. This latter should not be used to children, and being poisonous should be kept out of the way.

The diet should be carefully regulated, stimulants of all kinds avoided, and the tepid bath frequently made use of.

Watery Pimples.

Watery pimples are the result of the same action that gives rise to an ordinary blister; inflammation is excited in the sensitive skin from some external or internal cause, and the inflamed vessels pour out the watery part of the blood, and so raise the cuticle or scarf skin. Watery pimples present great variety in number and size; some are so minute as scarcely to be discernible, while others are as large as a hen's egg. The smallest vesicles, which are about the size of a pin's head, are termed eczema; when of the size of a large pea, they are termed herpes; when of a larger size, rupia; when of the bulk of blisters, pemphigus.

Eczema, or humid tetter, consists of an eruption of small vesicles in various parts of the skin closely crowded together, and often running into each other, so as to form on being ruptured superficial moist excoriations; they are sometimes on a pale, at other times on a red inflamed base. The copious watery discharge spreads on the sound skin, causing irritation and extension of the disease; and if left to itself, it dries up by evaporation, and forms a crust which gets progressively thicker. Around the lips and the face of children this crust forms a kind of mask, and on the scalp it mats the hair together and is peculiarly unpleasant.

Herpes consists of clusters of vesicles upon inflamed patches of irregular size and form. The eruption runs a definite course of from two to three weeks, and is not usually severe. It breaks out upon and around the lips on the subsidence of a cold, and sometimes around the apertures of the nose and eyelids. Shingles is a variety of herpes.

Rupia is an eruption of small flattened solitary vesicles containing at first serous fluid, which soon becomes purulent, and concretes into dark brown rough prominent crusts, resembling limpet- or oyster-shells; when the crusts fall off, they leave ulcers indisposed to heal. Rupia originates in a debilitated constitution, (sometimes from syphilis), and often lasts for weeks or months.

Pemphigus is an eruption of bubbles of scarf skin, containing a watery fluid, like the bubbles raised by a blister, which is a kind of local pemphigus: they vary in size from that of a split pea to that of half a walnut shell, and riseup very quickly, break, and leave an excoriated surface which soon heals.

The Treatment must be antiphlogistic or tonic, accordingly as the disease originates in a plethoric or feeble frame. Alteratives and gentle laxatives are generally necessary, as the alkaline solution with rhubarb No. 15, or the pills No. 41 or 42, with decoction of sarsaparilla alone or combined with hydriodate of potassium No. 13. A spare or nutritive and generous diet, as the nature of the case requires, fresh air, tepid bathing, and the application of the lotion No. 149, or of fomentations followed by that of the alkaline cerate, No. 157, will be beneficial: after the exfoliation of the crusts, the sulphate of zinc lotion, No. 148, may be used; but the less the eruptions are locally interfered with, the better.

Mattery Pimples.

These are characterized by small pustules rising on an inflamed skin, which attain their full size in two or three days, and then either dry up without breaking, or burst, dry, and form crusts.

Impetigo, or yellow-crusted tetter.—Of this there are two varieties. The first generally occurs on the face, especially the cheeks, and is attended with some constitutional derangement: as the pustules burst and form scabs, the heat and itching become intolerable. In children it sometimes covers the face like a mask, called the *milk crust.* The second variety is more diffused over a limb, or the body generally.

Ecthyma, or black-crusted tetter.—In this the skin is highly inflamed, and the pustules are prominent, distinct, and scattered over the body generally, and terminate in thick black scabs. In feeble people the matter is frequently coloured by an admixture of blood. It is often caused by stimulating substances applied to the skin—as lime, salt, sugar, &c. Grocers and bricklayers frequently suffer from the disease.

Treatment.—Warm baths, fomentations, and the alkaline cerate, to facilitate the desquamation of the crusts, or the weak citrine ointment diluted with an equal portion of lard. Attention to the general health is of considerable importance to reduce the full habit, and uphold the weak; and when the disease is of any duration, change of scene and change of air are advisable.

Scaly eruptions, or Dry-tetter.

These are distinguished from rashes and pimples by the alteration of the scarf skin which immediately covers the inflamed part. The eruption commences as a small dull red spot raised above the level of the surrounding skin, as large at its summit as at its base. The scarf skin becomes slightly roughened, forming a thin circular scale, which increases in thickness by the addition of fresh layers to its under surface, and has a bright, silvery lustre. The pimples increase in dimensions to the size of a shilling or half-crown piece; and as they increase in size, the disease appears to decline in the centre, forming a scaly ring round a pale spot. The eruptions vary in shape, and sometimes in colour, being white or blackish, and, in feeble persons, of a livid hue. The usual situations of these eruptions are about the joints and hairy scalp, never on the face. Leprosy (whilst red) is of this variety, as is also psoriasis.

Psoriasis possesses great variety in its appearance. Instead of continuing in distinct spots with intervals of healthy integument, the pimples often unite and cover an entire limb with one continuous and irregular shield of incrustation, which cracks and chaps as on the arms of washerwomen, the chaps drying without any humour. The eruption sometimes forms convoluted lines. Psoriasis occasionally locates itself in different parts without affecting others; as the eyelids, beneath the finger nails, the palms of the hands, and round the mouth. Psoriasis is closely allied to Lepra, and requires the same mode of treatment.

Dandriff or branny tetter is characterised by the production of minute white scales or scurf in great quantity. It is usually situated on the head, face, breast, hands, feet, and the bending of the joints. It is particularly annoying when it affects the hairy scalp: the itching is sometimes intolerable; and the most careful brushing only clears the hair for the time, the scurf collecting again in large quantities and requiring frequent removal. The circular red patches which appear on the cheeks covered with branny or dusty-looking scales are a variety.

Treatment.—An occasional purgative should be taken, and great cleanliness observed. The alkaline lotion No. 159, or the creasote lotion No. 160, or ultimately the dilute citrine ointment No. 151, may be used. When the disease is situated on the head, the hair should be cut close.

All chronic diseases of the skin will be benefitted by the exhibition of mild alterative aperients, as the alkaline solution with rhubarb No. 15, or the pills No. 16 and 17, or sulphur powder No. 77 ; a carefully regulated diet, spare or more generous according to the state of the system; the observance of strict cleanliness by ablutions, frictions with coarse towels, frequent change of body clothing, and occasional tepid bathing; active exercise to excite a glow on the surface, and the regular use for some time of the sulphur vapour bath; and, at intervals, change of scene and change of air.

Purpura.

Purpura is an eruption on the skin, of small, distinct purple specks or patches, which are caused by a diseased condition of the capillaries (or extremely minute blood-vessels), owing to which blood is effused under the cuticle, and also into the different tissues of the body. The spots vary in colour from bright red to purple, and when about to disappear turn brown or yellowish. They are seen first on the legs and thighs, then on the arms and trunk of the body, very rarely on the hands, and never on the face. The cuticle over them appears shining, but is never sensibly elevated, and pressure does not efface them. In some few cases there will be vesicles above the surface containing black blood: this is more frequently the case within the mouth, on the tongue, and on the inside of the cheeks and lips. The gentlest pressure on the skin, where it is thin, will often produce a purple patch (ecchymosis) resembling a bruise. Purpura is sometimes associated with scurvy, and sometimes with other diseases of the skin.

"It is strictly a hæmorrhage" (Watson). The same state which gives rise to the effusions of blood under the cuticle produces hæmorrhage from various parts of the body, particularly the mucous membranes of the bowels, bladder, and inside of the mouth. It is always attended with general debility, and sometimes with fever. There are several varieties.

Treatment.—In cases where it appears to be inflammatory, bleeding is said to be required. It is generally a disease of debility, and the system requires support by a generous and nutritious diet: the skin should be sponged with vinegar and water, cold or tepid; the bowels carefully regulated by the mixture No. 38, or draught No. 37; the mineral acids combined with tonics, as mixtures No. 124, 125, 125*a*, 129*a*, and 129*b* given; and, where there is hæmorrhage from the bowels or bladder, the gallic acid mixture No. 59. Carriage exercise should be taken, and long walks avoided, and the recumbent posture on a sofa mostly observed. Small doses of the spirits of turpentine have been recommended. To accelerate the restoration of the strength, sea-bathing, and change of air, will be useful.

SMALL-POX.

A disease characterised by acute fever, succeeded on the third day by an eruption of red pimples, which on the eighth contain pus (matter), and afterwards dry and fall off in crusts. It is of a very contagious nature, and is supposed to have been introduced into Europe from the East. It is not mentioned by the Greek and Roman writers. It attacks persons of all ages; but the young of both sexes are more liable to it than those who are more advanced in life. It may prevail at all seasons of the year; but is most prevalent in the spring and autumn. Small-pox is distinguished into the distinct and confluent: in the former the pustules are perfectly separate from each other; in the latter they coalesce, or unite with one another. The severity of the disease is almost always in proportion to the quantity of the eruption. When this is moderate, and the pustules distinct, the disease is seldom attended with danger. When the eruption is abundant and the pustules coalesce, it is always perilous.

In the distinct form, on the third day of the fever an eruption usually appears, with a central depression on the top of each pimple, which contains transparent lymph, and is surrounded by a red margin, termed areola. The eruptive fever then abates considerably, and about the fifth day of the eruption, or eighth of the disease, the central depression has disappeared, suppuration has taken place, and the vesicles have become pustules, and are filled with matter: the pustule then bursts, the matter oozes out, and dries into a scab, forming a dark spot on the top of each. In about ten days more, the crusts or scabs fall off, leaving a purplish red stain, which gradually fades, except where the disease has penetrated so deeply as to destroy the true skin; in which case a pit or pock-mark remains.

In the confluent small-pox, the eruptive fever is usually preceded by a red blush or rash on the skin. The fever is more intense, and increases from the first appearance of the eruption to the period of maturation. The eyelids swell, so that by the fifth day the patient cannot see; the face and parotid glands also become swollen, and salivation takes place. The pustules soon coalesce, lose their regular shape, are often flattened, and contain, instead of true matter, a brownish ichor: they are not surrounded by a red margin, but the intermediate spaces appear pale and flaccid. On the vesicles breaking, large black scabs are formed, exhaling great fœtor; the mucous membrane of the nose, mouth, and throat, is covered with eruption, and the throat is sore almost to suffocation. and there is hoarseness and cough. The fever does not cease on the appearance of the eruption, but becomes intense and perilous about the eleventh day of the disease, or ninth of the eruption, and is attended with coma, delirium, perhaps convulsions, hæmorrhages, bloody urine, and dysentery, or it occasionally at once proves fatal, the system appearing to be overwhelmed by the virulence of the poison. Should recovery take place, the pits are much deeper than in the milder form.

There is no contagion so powerful and certain as that of small-pox. The time from imbibing the poison or taking the disease to the commencement of the symptoms is about twelve days, during which period little or no inconvenience is experienced. Both species are produced either by breathing air impregnated with the effluvia arising from those who labour under the disease, or by the introduction of a small quantity of small-pox matter into the system by inoculation; the difference in the forms of the disease is thought not to be owing to any difference in the contagion, but on the state of the individual on whom it acts, or on certain circumstances concurring with the application of it.

Treatment.—The fever preceding the eruption will be benefitted by the administration of an emetic No. 107, followed by a purgative No. 20, to clear out the stomach and bowels, and by diluent drinks and a spare diet: the eruptive fever may be controlled by saline aperients No. 23 or No. 113, given so as to keep the bowels moderately open, by the free admission of cool fresh air into the apartment, and by diminishing the heat of the skin by sponging with cold or tepid water as may be most agreeable to the feelings. If the formation of matter goes on slowly, good broths and wine whey should be given, and if there be much irritability, a full dose of the compound ipecacuanha powder or the solution of morphia at bed-time, and the feet should be immersed in a warm or mustard foot bath. In the secondary fever the system is to be supported by a mild and nourishing diet, and if the face is much swollen and the eyelids closed, bathing them with a warm decoction of poppies, and smearing with olive oil or cold cream, will be of advantage. The throat may be gargled with the gargles No. 153 or 154, and if there be much head-ache, mustard poultices should be applied to the feet, the hair cut close, and the head bathed with the spirit lotion, No. 149. Diarrhœa may be checked by the compound chalk mixture with opium, No. 58. To relieve the itching, the eruption may be smeared with a liniment of equal parts of lime water and linseed oil, Where there is a tendency to sweating after the eruptive fever has subsided, a cooling regimen should be observed, and acidulous drinks taken. To prevent pitting, smearing the eruption with mercurial ointment, or puncturing each pustule and absorbing the matter with soft cotton, has been recommended. The confluent form will require medical care under all or any circumstances, and the same treatment as typhus fever. After a patient has left his room, he should, if the weather permit, be as much in the air as possible, away from other persons, so that his clothes may be purified from the infection. Vaccination and revaccination are the only means for the prevention of the disease.

SORE-THROAT; QUINSEY.

Inflammatory sore-throat generally commences with rigor, followed by a smart attack of fever and accompanied by a sense of fulness, heat, and dryness of the throat, hoarseness of voice, difficulty of swallowing, and pain shooting towards the ear. The throat is of a florid red colour, deeper over the tonsils, which are swollen and covered with a viscid mucus, and the tongue is coated with a white fur. As the disease goes on, the swelling of the tonsils increases, the act of swallowing becomes more painful and difficult, liquids return through the nose, and there is a constant discharge of viscid saliva from the mouth: the fever often increases with the enlargement of the tonsils, and is accompanied by acute pain of the back and limbs. Commonly the inflammation runs a certain course, and terminates gradually in a few days, leaving the tonsils somewhat enlarged; at other times the disease is more violent and prolonged, and terminates by the formation of abscess in one or both tonsils. The suppuration is preceded by shivering, and the pain and distress are very great, almost producing suffocation, till the abscess bursts, or the matter is let out.

The principal exciting cause of quinsey is cold, and the liability to it is increased by repetitions of the attacks. Dr. Guy says that long and loud crying may also produce it.

Treatment.—When the disease is slight, the treatment appropriate to catarrh will suffice; when it is more severe, an emetic No. 107, given at the commencement, and followed by an aperient, No. 20, and the application of a large mustard or hot linseed-meal poultice, or a blister outside the throat, observing a cooling regimen, and sipping iced water, or swallowing small pieces of rough ice, will frequently arrest its further progress. Otherwise, if there be much swelling, six, eight, or ten leeches may be applied over the swelling of one or both sides outside the throat, followed by a large linseed-meal poultice, and the use of the gargle No. 153, inhaling the steam of warm water through an inhaler, or by means of an inverted funnel over a jug of hot water, and taking the saline mixture No. 113, will be appropriate. Where the formation of matter occurs, relief can only be obtained by the abscess bursting, which it frequently does, the contents being swallowed or spat up, or the matter being let out by a medical man; after which a more generous diet, with a moderate quantity of wine, and the tonic mixtures No. 124 or 125, will be proper to restore the strength. Where the tonsils remain enlarged, they should be well rubbed outside twice a day with the liniments No. 135 or 136, and the throat gargled with salt and water in the proportion of a tea-spoonful of salt to a tumbler of water.

Sometimes the throat is the seat of chronic soreness, accompanied by hoarseness, and a frequent and irritating cough; there is a puffiness or thickening of the inside of the throat, and often a relaxed or elongated uvula, which is especially troublesome on lying down in bed. The following gargle may be tried: Take a table-spoonful of salt, a small tea-spoonful of Cayenne pepper, infuse in a pint of boiling water, strain off the liquor carefully when cold, and use three times a day, sitting down in a low backed chair and holding the head well back. The throat should be sponged outside with strong salt and water cold, or with vinegar twice a day, and not too much covered. If these means do not succeed, it may be desirable to have a portion of the uvula cut off, afterwards gargling with weak port wine and water, and abstaining from eating solid food for three or four days. In other cases, where the throat has a raw granulated appearance, the application of lunar caustic by a medical man is advisable, the general health being at the same time attended to.

SPRAINS

Are the result of straining, overstretching, or tearing the ligaments of a joint. The wrist and ankle bones are the most liable to this injury. Sprains are attended with very severe pain, often causing faintness and vomiting. There is generally considerable swelling, which is mostly discoloured from the effusion of blood underneath the integuments. There is frequently great difficulty in ascertaining whether the injured joint be merely sprained, or whether dislocation or fracture has taken place: if, therefore, the injury is at all severe, a surgeon had better be at once consulted, as the cure of a dislocation or fracture becomes continually more difficult from delay, and at last impossible. Sprains are by no means trivial injuries, for not only are they excessively painful, but if neglected they may lead to permanent disease and white swelling, and they are far more difficult to cure than fractures and dislocations. "It would be better to break a limb than sprain a joint," says Mr. South, "the former in 99 cases out of 100 being cured in the course of a few weeks, if the skin have not been broken; whilst the effects of the latter may at best remain for weeks or months as weakness or stiffness in the joint."

Treatment.—Perfect rest of the injured joint is of the first necessity, and the only effectual means of cure. When, therefore, it has been satisfactorily ascertained that there is no dislocation or fracture, the patient should, if the ankle or knee be sprained, at once betake himself to the sofa or bed.

"Warm moist flannels should be repeatedly applied to the sprained joint for some hours, and a bread and water poultice on going to bed. These should be continued for a few days, and no attempt made to use the joint. If the pain be very severe, and continue so for the first and following days, leeches may be applied, and repeated once or oftener. When the tenderness has subsided, a vinegar poultice is a very good application, as it produces a diversion of the low inflammation going on in the ligaments by bringing out a crop of pustules on the skin, at a time when the pressure from rubbing with any stimulating liniment cannot be borne. When the pain has entirely ceased, the joint must not be carelessly used; and if the knee or ankle be sprained, walking while the joint is weak or painful must be carefully avoided, as irreparable mischief is thereby very often set up. A joint often swells a long while after a sprain; under which circumstance it is best to bind it up with straps of soap plaster or a roller" (South.)

If during the first few hours the inflammation runs high, and the person be of full habit, purgatives may be advisable. To allay the pain, perhaps it may be desirable to give an opiate, as the mixture No. 27, or ten grains of the compound ipecacuanha powder with two grains of calomel at bed-time, and a dose of senna mixture No. 20 in the morning.

As soon as it can be borne, friction and the cold douche will be serviceable in promoting the absorption of the effused fluids, and restoring tone to the joint.

Suspended Animation.

Suspended animation from suffocation, strangulation, and stifling, may be caused by whatever prevents the renewal of air in the lungs; as hanging, drowning, choking, inhalation of noxious vapours, &c.

In these cases, the blood, not getting rid of the carbon which it has acquired during its circulation through the body (See Part I. Chap. I., §§ 7 and 9-14), becomes blacker and blacker, circulates more and more slowly, and at length ceases to flow from the lungs into the left side of the heart, which is consequently found nearly empty after death; whilst, from the same cause, the right side of the heart is full of black blood. Although the effects of not breathing at all, and those of breathing foul air, are the same in the end, yet the latter follow less rapidly, and therefore the means employed for the relief of the sufferer are more likely to succeed.

Drowning.—When a person is immersed in water, he is seized with an urgent feeling of anxiety at his breast, and his pulse becomes weak and frequent; he struggles to relieve his distress, and thereby rises to the surface of the water, and throws out some air from his lungs, and then sinks again; his anxiety increases, his pulse becomes feebler, his struggles are renewed with more violence; he rises to the surface again, throws out more air from the lungs, and makes hurried attempts to inspire; a quantity of water goes down the throat with the air, and excites cough and spasm of the glottis: these efforts tend to determine blood to the head, insensibility rapidly ensues, and loss of power; the surface of the body becomes slightly livid, more particularly the face, neck, lips, and nails; the tongue becomes swollen, but rarely protrudes beyond the teeth, which are very often strongly closed together; the pulse stops, the belly distends, the sphincters relax, and as the body sinks to the bottom the remaining portion of the air contained in the chest is expelled: then ensue total loss of sensation, stifling, and death, and foam escapes from the mouth and nostrils.

The period after which reanimation may be produced is extremely various, generally from five minutes to three quarters of an hour. Where a person has been struck on the head and stunned, or is intoxicated, or benumbed with cold and fright, reanimation is more difficult. Life is more quickly extinguished by submersion in water of a very low temperature than in that which is warmer, evidently owing to the sedative effects of cold upon the nervous system (Copland's Dictionary of Practical Medicine).

Treatment.—As the probability of recovery depends upon immediate and proper assistance, on the first alarm of any person being drowned and suffocated, and while the body is being searched for and conveyed to the nearest house, the following articles should be got ready: viz., warm blankets, flannels, a plentiful supply of warm water, heated bricks, a pair of bellows, a warming pan, salvolatile, an enema apparatus, and an electrifying machine.

In conveying the body to the house, it should be placed on a board with the head somewhat raised and propped, so as not to roll from one side to the other. If carried by hand, the body should be borne by seven persons forming a sort of litter by joining hands, four of whom should bear the trunk with the shoulders a little raised, two the legs, and the seventh should be solely occupied in carrying the head, keeping it a little higher than the shoulders, without bending the neck, and taking care that it does not move from side to side. A greater number of persons only jostle one another, and move the body unsteadily.

The great objects to be had in view in the treatment are to re-excite the circulation and breathing, which are suspended, and to restore the temperature of the body. The wet clothes are to be immediately removed, the mouth and nostrils cleansed, and the body placed on its back in warm blankets; this should be done as soon as the body is found, if the weather be cold, and the distance to the place where resuscitation is to be attempted be considerable. On arrival at the house, a spacious room with a good fire is to be preferred, and there should be only five or six attendants. The head and shoulders being a little raised, friction is to be made with warm coarse flannels over the body and limbs, particularly the chest, and bladders or bottles filled with hot water, or heated bricks, should be applied to the pit of the stomach and soles of the feet; hot sand or ashes in woollen stockings, a pan of warm coals, taking care it is not too hot, warm grains, a warm bath at 98° to 100°, or other available means of applying heat, may be resorted to.

Pressure should be made upon the breast and abdomen, alternately with relaxation, in such a manner as to resemble breathing, and thus get the foul air out of, and fresh air into the lungs: gentle shocks with the hands on each side of the chest will be of use for the same purpose. At the same time, the rubbing should be unremittingly continued, even for many hours: relays of assistants should therefore be provided. Mr. South states that in a case mentioned by Dr. Douglas, which is one of the most remarkable on record, no sign of revival appeared until the rubbing had been continued for eight hours and a half from the time of the accident. The relay of rubbers should wait outside till their services are required, when the others should leave the room, so as not to render the air impure by their breathing, and thus lessen the chances of the patient's recovery. Artificial respiration should be made by forcing air into the lungs by a pair of bellows cleared from dust, or by the mouth of another person when the bellows are not at hand. The operator having compressed the nostrils, and applied his mouth to that of the patient, is to blow forcibly into it, pressing the chest afterwards, in order to expel the air, and again blowing forcibly into the chest; or the pipe of a bellows may be inserted into one nostril, the other nostril and the mouth being closed, and as soon as the rising of the chest indicates distension of the lungs, pressure should be made by an assistant, and the mouth opened: this alternate inflation and compression, so as to imitate the natural respiration, should be continued for some time.

Stimulating clysters of warm salt and water, or spirits and water, should be administered; shocks of electricity or galvanism should be passed through the chest and upper portion of the spine, where a machine is obtainable. Warm water injected into the stomach by the stomach-pump has been highly spoken of as a means of communicating heat to the surrounding parts, as the diaphragm, heart, and lungs; and by washing out the stomach with warm water the diaphragm is moved up and down, and the viscera of the chest consequently exercised. The above means, particularly friction, inflation of the lungs, and the occasional use of stimulants, should be persisted in for several hours, unless stiffness of the limbs and other signs of death come on.

Convulsive catchings of the muscles of the chest, with gaspings, followed by sighing, are observed as soon as the warmth and rubbing begin to take effect, and should encourage us to more vigorous exertion, for the least relaxation may loosen the hold we have on life: another sob or sigh shortly follows, the jaws begin to relax, a slight flutter of the heart will be felt, and the pulse found to beat feebly. By degrees, breathing becomes more apparent, slow at first, but gradually increasing in quickness, when the heart's action becomes more distinct. As soon as the mouth can be got open, a little weak wine, or spirits and water, or warm tea, should be given, taking especial care that the spoon be carried far back into the throat, so as to press down the epiglottis and escape the windpipe. As the circulation is restored, the senses slowly and gradually return. Sometimes the patient screeches out in apparent alarm as consciousness returns; at other times convulsions take place, and suddenly destroy him. He must, therefore, be carefully watched for some time; and if there be continued insensibility, with stertorous breathing as if the brain were oppressed, it may be advisable to take away some blood; the quantity of blood being carefully regulated by its effect: cupping is to be preferred to bleeding from the arm. He should then be put to bed and kept tranquil, and fresh air freely admitted, and warm drinks given in moderate quantities at a time, so as to excite perspiration: the usual means should afterwards be employed to restore the secretions and excretions, and to carry off the hurtful materials accumulated in the blood during the state of suspended animation.

STRANGULATION.—When animation is suspended from strangulation, or hanging, it is mostly in consequence of the rope or handkerchief constricting the windpipe below the larynx so tightly as to prevent the air passing into or out of the lungs, and the sufferer dies under the same circumstances as when the larynx is closed by pressure of the epiglottis in drowning or breathing foul air. If, however, the rope be very high up, the strength of the larynx (see p. 19) may prevent the windpipe being so closed that air cannot enter the lungs, and breathing may then be continued for a time; but the interruption the cord occasions to the return of blood from the head will produce death from apoplexy or congestion of the brain. "In some instances there is reason to believe that dislocation of the neck is produced in the execution of criminals; but it very rarely, or perhaps never, occurs in cases of suicide by strangulation" (Copland.) When a person hangs himself, or is hanged, it does not appear that he suffers much pain as the noose tightens round his neck, but merely has a sense of stupefaction and numbness, which ceases only with loss of consciousness. Sometimes he has a ringing in the ears, an appearance of blue light, or a kind of flame, which gradually sinks into darkness. Death very soon follows; and after the person has been hanged but a very few minutes, it is rarely possible to resuscitate him. "The countenance generally appears bloated and of a livid colour, the jaws are half closed, the mouth frothy, the tongue sometimes protruded and swollen, the eyes red, swollen, and starting from their sockets, the hands tightly clenched, and, as well as the nails, livid" (South).

Treatment.—This must be energetic and speedy. The body should be stripped and dashed with cold water; some blood taken from the arm, or, what is better, from the jugular vein; the head and shoulders raised as high as may be consistent with the means used for resuscitation; the chest well rubbed with stimulating liniments, and all the appliances before mentioned strenuously employed. If a restoration to life be effected, measures must be taken to guard the brain from congestion, to which that organ is liable after strangulation, by quietude, spare diet, and alterative aperients.

NOXIOUS GASES OR FOUL AIR, as carbonic acid gas, nitrogen (or azote), and hydrogen, may cause suspended animation. The more common is the first, and is such as is produced by the act of fermentation, as in breweries, slaking lime, or burning charcoal: it is also found in cellars, wells, and caves, that have been long shut up. Before descending into any of these places a lighted candle should be lowered to the bottom, and if it continue to burn persons may venture to go down; but if the light be extinguished, no one should attempt to do so till the air is purified by means of lime-water, to absorb the noxious vapour, or by splashing with water, or burning gunpowder. All extensive breweries should be furnished with a light crane and tackle, with grappling irons, by which the bottoms of the vats may be swept, so as to fish up a labourer who falls in attempting to clean it before the air has been purified. If no such tackle be ready, a hop-bag hook, or a pitch-fork with the prongs bent so as to form a hook, with a strong rope or cord attached, must be cautiously let down beyond the fallen person, and a second or third hook may be let down in like manner, till sufficient means and power are provided to hoist him up safely. If neither hook nor pitch-fork can be had, a rope with a running noose and a long pole, so as to fix the noose on an arm or leg, will be a good substitute.

The quickest way to get a person out of a well, if it be not too deep, and his situation can be seen from above, is by some bold clear-headed individual descending quickly, furnished with the end of a rope formed into a noose, and seizing or fixing the noose on the fallen person. As this is a matter of considerable danger, the man who descends should have his head and shoulders well wrapped in a thick sack, through which the foul air cannot easily enter, and a rope securely tied round him, and held by the bystanders ready to pull him up, if, in his praiseworthy efforts, he himself should be overcome by the foul air.

Treatment.—On being extricated, the body should be brought into the open air, stripped of clothes, and, if warm, dashed with cold water; or, if there be a stream near, the body may be quickly plunged once or twice into it, taking care that the head is not dipped in also. This mode has been found to recover dogs that have been half killed by inhaling the foul air of the Grotto del Cane, near Naples. If, however, any one has fallen into the water, and be cold, he should be put to bed in an airy room, and warmth applied by hot bottles to his feet and hands, and the means strenuously employed which are prescribed under the heads of hanging and drowning; viz. active friction on the chest, and stimulating liniments, &c. &c.

The foul air should be expelled from the lungs by pressure being made by one person with both hands on the chest, while, at the same time, a second person with outspread hands presses firmly on the abdomen: by this means the diaphragm, or muscular partition between the chest and belly, will be forced up into the chest, and the lungs compressed into a very small space. By both removing the pressure simultaneously, fresh air will rush down the windpipe; and, by thus pressing and relaxing alternately, the act of respiration will be imitated, and every chance of inflating the lungs with fresh air will be obtained. Warm water may be injected into the stomach, clysters of turpentine and water administered, and, among other things, a napkin moistened with a solution of chloride of soda or lime placed under the nostrils. Tickling the throat with a feather is most favourably spoken of; and shocks of electricity may also be passed through the chest.

A STROKE OF LIGHTNING, OR A BLOW, may cause suspended animation. The same mode of treatment is to be resorted to as in the case of the inhalation of noxious vapours; and in this case the application of electricity and stimulating odours and liniments promise the best chance of success.

EXPOSURE TO COLD.—The effect of a protracted exposure to an extremely low temperature on the body generally, is depression of nervous energy, diminution of the functions of the skin and respiratory organs, irresistible drowsiness, and death.

The local effects of severe cold, as on a limb, are rigidity of the limb, or frost-bite and death of the part affected; and on grasping an intensely cold body with the hand, the skin is blistered. Parts which are frost-bitten, as the nose, external ears, toes, and fingers, appear quite lifeless, pale, and shrunk. If meat, fruits, and vegetables that are frozen, be brought near the fire, or immersed in hot water, they become rotten, and are spoiled: the proper way to thaw them is by placing them in cold water for some time. The same holds good with regard to living parts which are frozen: the temperature must not be suddenly raised by exposure to the fire, but the sensation and heat must be gradually restored by first rubbing them with snow, the temperature of which is rarely below 33°, or by friction till reaction is established, and then bathing them in slightly tepid water, and soothing if necessary afterwards by means of warm poultices.

In the *Treatment* of a person apparently lifeless from the effects of cold, great caution is required in the application of warmth. The body should be rubbed with snow or cold water, or immersed for a few minutes in a cold bath, and then wiped dry, and active friction made by the warm hands of several persons, in a moderately warm, well-aired, and spacious apartment, and the means resorted to which are directed for the treatment of drowned persons. Individuals in an apparently hopeless state have been recovered by perseverance for some hours. As soon as the power of swallowing returns, some mildly stimulating drink should be given, as light broths, weak spirits, or wine and water, by spoonfuls at a time. After animation is restored, should the sufferer remain in a comatose or drowsy state, a moderate quantity of blood may be taken, to relieve the congested state of the blood-vessels of the brain.

SWELLINGS AND TUMOURS.

Swellings of any part of the body are of various kinds, and arise from various causes. The term tumour is generally applied to swellings of a more or less permanent character, which consist of morbid growths of solid matter, or of fluid matter contained in bags (cysts), and which may be considered to a certain extent as an addition to the part affected, and not merely an enlargement of its natural structure. Encysted tumours, and, indeed, most other removable tumours, come properly under the care of the surgeon. Swellings of specific characters are treated of under their several heads, and to them the reader is referred, as well as to what is said under Structural Pathology (pp. 77-80), Cancer, Ovarian Tumours, Dropsy, &c. &c.

Swellings may arise in various textures from common inflammation, (from injury to the part, local exposure to cold, &c. &c.,) or from the determination of a specific poison to the particular structure, or from a constitutional tendency. Such swellings may be solid or fluid, and the fluid effused may be either extravasated blood, or serum, or pus. (See pages 80-85, also Abscess, Mumps, Bubo, Swelled Testicle, Sprain, Rheumatism, Gout, &c.) Care should be taken that a solid or locally confined fluid swelling is not mistaken for one arising from the presence of air, or of a generally diffusible fluid: injury has sometimes resulted from putting on a truss to keep back what was supposed to be the protruded bowel of inguinal hernia, but which was really Bubo. Among swellings is one (White Swelling), not mentioned elsewhere, and on which it may be therefore advisable to say a few words in this place.

WHITE SWELLING is a disease which attacks the joints. The knee, ankle, wrist, and elbow, are the most subject to it, particularly the knee. The skin is uninflamed, and retains its natural colour, and, indeed, looks whiter than usual, from being stretched. There are many varieties of this disease, but all may be classed as either rheumatic or scrofulous. Any circumstance which would bring on inflammation of a joint in a healthy subject, may in those of a scrofulous habit cause white swelling; but few who have attained the age of twenty-five without scrofulous symptoms, ever suffer from scrofulous white swellings. In this disease the joint is enormously enlarged; the bones, ligaments, and soft parts are sometimes all diseased, the ligaments being thickened and softened, and a viscid fluid found intermixed with the cellular substance, and, perhaps, a white curdy matter in the cavity of the joint: the cartilages are sometimes also absorbed. The swelling generally yields somewhat to pressure, but never pits. The pain is frequently agonizing, and sometimes precedes, at other times follows, the swelling, and is generally situated in some particular spot of the joint: it is sometimes continuous, sometimes intermittent, and sometimes periodical. White swelling is a most serious disorder, often requiring amputation, or leading to a stiffened joint, or proving fatal.

Treatment.—If, as is sometimes the case, the diseased joint is also affected with acute inflammation, topical bleeding, lead lotions, No. 142, and an antiphlogistic regimen, must be resorted to: but the proper treatment for white swelling would seem to consist in copious blistering of the joint, so as to keep up a constant discharge where it can be borne; or subjecting the joint to general and equal pressure by means of rollers. Hectic symptoms and diarrhœa are the frequent accompaniments of white swelling: these must be combated by bark and opium, and the means pointed out elsewhere. Opium is a very valuable medicine in this disease: which, however, ought always to be put under the care of a surgeon.

SYPHILIS, OR VENEREAL DISEASE,

Is the result of impure sexual intercourse, and is characterised by the appearance of a pimple (from three to seven days after), surrounded by a kind of erysipelatous inflammation, which terminates in a simple ulcer, named chancre. The ulcer has hard and ragged edges, and a yellow surface and red margin, with hardness underneath. Chancres vary exceedingly in their appearance in different persons, and in the same person under different degrees of irritation, and as they are accompanied by more or less inflammation (Cooper.) They are mostly situated on the penis in men, and labia in women. Syphilis cannot be communicated through the medium of the breath, or from the atmosphere, nor, apparently, through any of the ordinary natural secretions, and certainly never by one person touching the sound part of the skin of another labouring under the disease.

An infected pregnant woman may communicate it to the child in her womb through the medium of her blood. If a sore, occurring under the circumstances mentioned above, is not removed by quietude, a frugal diet, frequent ablution with tepid water, and a dose of aperient medicine, it is better to have recourse to a surgeon at once than to place the system under the influence of mercury unnecessarily; and, above all, to avoid advertising quacks, who play upon the credulity of their patients, alarm them, pick their pockets, and injure their health. Dr. Graves says that chancre, if seen shortly after its appearance, may, in eight cases out of ten, be treated safely and successfully without a single grain of mercury.

The necessity of avoiding excesses of all kinds, during the treatment of chancre, is most strongly urged by Sir A. Cooper (Lectures, p. 546), and Dr. Graves (Clinical Lectures, p. 472).

SYPHILITIC ERUPTIONS are the mildest form of the secondary symptoms of the venereal disease, and in general admit of an easy cure. They are commonly of a copper colour, rise a little above the surface of the skin, and, if they go on to ulceration, form thick incrustations or scabs: they are attended with an itching rather than a painful sensation, which increases in the evening. There is great variety in the character of syphilitic eruptions. They sometimes form deep ulcerations, with a ragged edge; at other times, scaly eruptions covering large surfaces in various parts of the body (Cooper.)

They appear mostly at first on the forehead, face, the roots of the hair, the breast, back, and shoulders; and sometimes on the palms of the hands and soles of the feet. In whatever form the eruptions appear, their distinguishing character is their copper-coloured base, which will be rendered more distinct by putting the skin on the stretch. The scales, where they exist, are of a dusky colour, thin and dry; and the scabs, or incrustations, are of a greenish tint, thick, dry, and cracked. When there is a doubt of their syphilitic nature, the history and preceding symptoms will enable us to form a correct judgment. The common accompaniments of these eruptions are ulcerations of the tonsils, palate, and sides of the tongue.

Treatment.—As there is generally a state of febrile excitement accompanying these eruptions, this should first be subdued, by the observance of a strictly abstemious but nutritious diet, the administration of some saline aperient, as three or four table spoonfuls of the mixtures No. 11 or No. 23 twice a day, to procure an open state of bowels, and taking one or two tepid baths. This regimen, followed by the decoction of sarsaparilla, with or without nitric acid, was formerly considered sufficient for the cure. It is now deemed more safe and effectual that some form of mercury should be employed, of which the bichloride, or corrosive sublimate, is considered the most efficacious. From one-twelfth to one-eighth of a grain, or two drachms of the solution of the bichloride of the London Pharmacopœia, should be taken twice a day in a third or half of a pint of decoction of sarsaparilla, and the solution gradually increased to two drachms three times a day: this should be taken a sufficient length of time to rid the sytem of the syphilitic poison with which it is contaminated. As taking mercury in any form disagrees with many, a much more safe and beneficial plan in syphilitic eruptions is the use of the mercurial vapour bath, as administered by Dr. Green, of Great Marlborough Street, London, or Professor Parker, of Birmingham. While these baths are being used, the sarsaparilla, or decoction of guaiacum, should be taken, and, after a time, with the addition of thirty drops of the dilute nitric acid three times a day, which assists in restoring the general health. The medicine should be continued for some time after the disappearance of the eruption (Cooper.)

Teething, &c.

The teeth, and their number and situation in each jaw, are described in Part I., as well as their structure and mode of formation. It is there further stated that, as the tooth increases in size within the socket, it pushes up and cuts through the membrane and gum: this frequently occasions great irritation, especially in infants of susceptible temperament, and requires particular attention. Some children are born with a tooth, or even two teeth, already visible in the lower jaw; and these sometimes so much impede the sucking, and occasion such pain to the mother, as to necessitate their extraction. Usually, however, the two lower front incisor teeth do not appear till about the seventh month after birth, and are succeeded about the ninth month by the two lateral incisors of the lower jaw, and the milk incisors of the upper: then follow within a few months the first molar teeth, the canine, and the last molars, making twenty in all. These begin to loosen and shed, owing to the progress towards the surface of the permanent teeth, at the age of from five to seven years; and the latter develope themselves in the same order as the first set, except that the first four permanent molar teeth cut through the gum at about the same period at which the lower front incisors begin to loosen. The last of the permanent set, the wise teeth, as they are called, complete the series, commonly at the age of from eighteen to twenty-five years, although they sometimes remain in embryo till even a very late period. As the teeth progress towards development, they stretch the membrane and gum covering them, causing more or less irritation, and sometimes giving rise to very distressing symptoms; the nervous system, and even brain, being frequently greatly disturbed. Spontaneous diarrhœa often relieves this state; but it becomes occasionally necessary to afford medical and surgical aid, by purgatives, and by freely dividing the swollen and tense gum down to the surface of the tooth by a gum lancet. This operation is not only expedient, but always quite safe; and its effect is almost instantaneous, many a child rousing at once, or within a few minutes, from a torpid condition to one of liveliness and restored health, all symptoms of febrile irritation rapidly subsiding. It may therefore be advantageously adopted whenever any aggravation of symptoms arises, and repeated when required by the distension of the gums. Very little trouble is experienced from the cutting of the permanent teeth, excepting those last in the jaw, called wise teeth, which not unfrequently produce irritation of the superjacent gum, and inflammation and swelling of the contiguous glands, caused chiefly by the gum being pushed up by the rising tooth, so as actually to be squeezed between it and its antagonist on closing the jaws. The remedy becomes obvious: it is simply the removal of the layer of gum pressed upon by both teeth. As the stretched gum is very elastic, the knife is apt to slip away from it: the removal is therefore best effected by a pair of sharp curved scissars; and, if possible, the whole surface of the rising tooth should be laid bare.

TESTICLE, SWELLING OF.

Swelled testicle, or hernia humoralis, is an inflammation of the testicle, of which the most common cause is the arrest of the discharge in gonorrhœa, or other irritations of the urethra. It very often occurs in consequence of blows or accidental violence to the organ. It is usually accompanied by pain and weakness of the loins, and sometimes by sickness and colicky pains of the bowels. In these cases the enlargement is the result of inflammation, and is to be treated accordingly. The most strict and perfect rest in the horizontal posture (in bed) should be observed. Ten or twelve leeches should be applied over the scrotum and along the course of the chord, and followed by warm fomentation, which is perhaps better done by sitting over a large pan of hot water, and being furnished with two flannels or sponges, and using them alternately. The fomentation should be repeated every three hours. In the intervals the patient should lie on his back, and the organ be supported with a suspensory bandage. If a bandage is not immediately procurable, a handkerchief should be passed round the waist, and the end of a second handkerchief attached to the middle of the first behind, and brought up between the thighs, its folds being separated so as to enclose the scrotum, and the second end fastened to the handkerchief round the waist in front. "If this is not attended to, the enlarged organ, from its increased weight, drops between the thighs, and the swelling is apt to become more troublesome." (Fergusson.) The bowels should be freely acted on, by taking three or five grains of calomel, followed by a compound senna draught, No. 20; and the sparest diet must be observed. If the organ continue hot and painful, it may be necessary to repeat the leeching once or twice; and if the patient be restless, to give an opiate, as five or ten grains of the compound ipecacuanha powder at bed-time. An open state of bowels should be preserved. In the majority of cases this treatment will be sufficient to relieve the inflammation, and a more liberal diet may then be taken. A suspensory bandage should be worn for some time; and, if necessary, the part may be bathed three times a day with the discutient lotion No. 145, and afterwards with a lotion made by dissolving half an ounce of the hydrochlorate of ammonia in a pint of spirits and water. If these means fail, and the swelling appear stationary, it may be freely rubbed with the mercurial liniment night and morning. Subsequently, it may be enveloped in strips of soap plaster carefully adjusted. An occasional emetic of sulphate of zinc, No. 109, or of copper, No. 110, will often accelerate the cure. At a later period the testicle may be sponged with a saturated solution of salt and water, or the douche salt water bath may be used. A frequent change of applications will be required; but if carefully managed, the great majority of cases do well.

TETANUS, OR RIGID SPASM,

Is characterised by general rigidity of the muscles. The most frequent variety is *Locked Jaw*, in which the muscles of the neck and throat are chiefly affected. Locked jaw sometimes it comes on suddenly and with great violence, but more commonly in a gradual manner, with a slight stiffness in the back of the neck, which extends to the root of the tongue, causing difficulty in swallowing: there is great tightness about the chest, with pain extending to the back. All the muscles of the face become implicated, and the teeth are so closely set together as not to admit the smallest opening: hence the name locked jaw. In some cases the spasmodic affection extends no further; in others, not only are the muscles of the neck and jaws affected, but also those of the trunk, and lastly those of the extremities, so as to bend the body to one side, or backward, forming an arch resting on the head and heels. During the course of the disorder, the abdominal muscles are strongly and rigidly contracted, as are also those of the lower extremities. "The suffering caused by the tetanic spasms is frightful to contemplate; the face is pale, the brows contracted, the skin covering the forehead wrinkled, the eyes fixed and prominent—sometimes suffused with tears,—the nostrils dilated, the corners of the mouth drawn in, the teeth exposed, and the features fixed in a sort of grin. The breathing is performed with difficulty and anguish; there is great thirst, and the sufferings are greatly increased by attempts to swallow; the pulse is feeble and frequent; the skin is covered with perspiration; and yet, with all this torture, the intellect remains clear and unaffected. Death at length closes the scene, being due partly to suffocation, and partly to exhaustion" (Turner.)

Tetanus is occasioned either by exposure to cold and damp, or by some local injury, as puncture, incision, or laceration. It is of more frequent occurrence in warm climates than in cold ones; particularly when much rain and moisture succeeds hot, sultry weather.

Treatment.—A medical man should be obtained without delay. In the meantime the patient should be immersed in a hot bath, and *copious enemas*, with an ounce of castor oil and the same quantity of turpentine in each, administered immediately. If a bath cannot be procured, the patient may be folded up in a large blanket wrung out of hot water; and while the patient is in the bath or blanket, a stream of cold water may be directed from some height on the head. On removal from the bath a full dose of laudanum, as one drachm, may be given, and repeated, while waiting for the medical man. The extract of Indian hemp, given in three-grain doses every two or three hours, is highly spoken of.

TOOTH-ACHE.

Tooth-ache is unfortunately too universally known to need description: it most commonly arises from a carious or softened condition of the visible portion of the tooth, exposing the interior pulp, or nerve and blood-vessels, to external influence, either from pressure, or the contact of acrimonious substances exciting irritation and inflammation. Innumerable have been the remedies proposed in such cases, and all, or almost all, have attained the credit of success from time to time; but experience has shown, in very many instances, how fallacious has been the reliance placed on them. It would be futile to endeavour to particularise the remedies suggested, but it may be as well to mention, that, according to late experience, the application of creasote, or chloroform, especially the latter, has been more uniformly beneficial than perhaps anything ever before tried; nevertheless, the ultimate resort is but too frequently forced upon the practitioner,—extraction becoming absolutely necessary. Pain supposed to be toothache may, however, arise from other causes than decay of the substance of the tooth, such as irritation and inflammation of the membrane (periosteum) lining the cavity of the socket, or undue pressure from grinding or gnashing of the teeth in pregnancy, or under some bodily ailment: or a particular tooth may be elevated above the level of its neighbours, and be subjected to be violently borne upon by its antagonist, thereby squeezing the membrane interposed between the fang of the tooth and the socket, and creating intense pain. In such cases, one or two leeches applied to the gum will often prove an effectual remedy for a time; but when the existing agony has been subdued, its recurrence can only be prevented by filing or cutting the tooth short enough to put it out of reach of its antagonist when the other teeth are closed, and the tooth may thus be retained with impunity even for years; provided, however, that the operation be performed before suppuration has ensued, in which latter event nothing but extraction will accomplish a cure. Teeth in the state just alluded to have little or no sensibility in their substance, and may be boldly filed without exciting pain, but other cases occur of teeth being undisturbed in the sockets, but abraded or worn down by attrition, so as to expose the true ivory of the tooth deprived of its enamel, and render it susceptible of excruciating agony, like tic douloureux, even by the contact of crumb of bread, or cold or hot air, or liquids. The most immediate and decisive remedy for this condition is undoubtedly the actual cautery (red-hot iron), but as this generally occasions great alarm, an equally effectual, though not so instantaneous a benefit, may be obtained by the application of caustic ammonia to the surface, repeated several times, care being taken that the ammonia should not touch the skin of the mouth or tongue.

ULCERS.

An ulcer is a granulating surface secreting matter, resulting from Abscess, Wounds, or Bruises. "Granulations are little grain-like, fleshy bodies ,which form on the surface of ulcers and suppurating wounds, and serve both for filling up the cavities, and bringing nearer together and uniting their sides" (Hooper's Dictionary). "In a healthy ulcer, the granulations are florid and equal on the surface of the sore, rising a little above the edge, which is necessary in order that it should heal kindly; the surface is bedewed with a cream-like matter, the edge is whitish, and adapts itself to the surface" (Cooper.)

When a wound cannot be healed by the adhesive process, poultices should be applied to excite the growth of granulations as soon as they have risen to the edge of the surrounding skin.

Strips of adhesive plaster should be applied to bring the sides of the sore nearer to each other, and to repress the growth of redundant granulations; or in some cases it may be necessary to apply a piece of dry lint on the middle of the surface under the plaster,—but it should not extend to the edge. Where the adhesive plaster is too stimulating, and causes a redundant secretion of matter, water-dressing is to be preferred; a piece of lint, moistened with water, is to be laid on the surface, and, if the ulcer is on a limb, strips of linen moistened with water may be passed from behind, forward, and doubled smoothly over the sore, the one end overlapping the other about half an inch: the whole should then be enveloped in oiled silk. Cold water is to be preferred where the ulcers are irritable and indolent; tepid water where the ulcer is in a state of excessive sensibility, or the system is feeble: as a general rule, it may be better to be governed by the sensations of the individual, gradually lowering the temperature without reducing the animal heat or vitality too much. Where the ulcer fills up slowly, a lotion of creasote, in the proportion of six drops to four ounces of water, may be applied to the surface. Where the granulations are indolent and look pale, a lotion of two grains of sulphate of zinc, or one grain of sulphate of copper, will be more appropriate; where exuberant, they may be slightly touched with the nitrate of silver; where painful, the lint and linen should be moistened with three parts of decoction of poppies, mixed with one of spirits, warm or cold; and where dark and sloughy, with fifty drops of nitric acid mixed with a quart of water: in elderly people, where the temperature is low, and the body feeble, two or three layers of carded wood should be applied over all, and ulcers of long standing should not be healed too rapidly, and some other drain by blistering, leeches, and alterative medicine, should be made use of. As the cure of ulcers is much influenced by the state of the general health, this should be rigorously attended to: regard should be had to air, exercise, and diet: the digestive organs should be kept in good order by aperients, and, where requisite, tonics given. After ulcers on the leg are healed, it may be requisite to wear a roller for some time, and more so if the limb was laid up while healing.

URINARY DISORDERS.

BLOODY URINE is a discharge of blood with the urine' commonly preceded by pain in the loins or region of the bladder, and accompanied by faintness. The urine is sometimes bright red, at other times dark brown or coffee-coloured. The blood may be from the vessels of any of the urinary organs or passages. When it is from the kidney or ureter, it is usually diffused throughout the whole of the urine; and its appearance is preceded by pains in the loins, and often accompanied by small worm-like pieces of coagula. When the blood follows the stream of urine which was previously clear, it is mostly from the bladder; but when the blood precedes the flow of urine, which afterwards issues in a clear stream, it is mostly derived from the urethra. There are several articles, which, when eaten, impart a red colour to the urine, much to the alarm of people; as the prickly pear, beet-root, madder, and some varieties of the strawberry. The urine is highly coloured, as if from blood, in many diseases, as fever, and severe dyspepsia, more particularly where the liver is much affected. Blood in the urine generally falls to the bottom of the utensil on standing; if the urine with the deposit be heated, the blood will settle in brown flakes. Where the urine is coloured by food or from other adventitious causes, and throws down a sediment on standing, such sediment, on heating the urine, will be redissolved. Blood will now and then be mixed with urine, where piles exist, or where there is bleeding from the neighbouring passages. The passing of bloody urine is sometimes a fatal symptom at the end of malignant diseases; as putrid fever, small-pox, plague, &c. It may be caused by falls or blows on the loins, lifting heavy weights, using any excessive or violent jolting motion, by diseases of the urinary passages, laceration during the passage of a stone, ulceration of the mucous lining, or malignant disease, in which cases there is usually a discharge of matter and thick mucus; by sensual excesses, by taking cantharides, or turpentine, or by the vapour of the latter being absorbed during the painting of a house; and it now and then will occur without any assignable cause.

On some rare occasions, the bladder becomes distended with blood, in which case recourse must be had to a surgeon, to break down the coagulum and inject the bladder with tepid water, or, should the bleeding be continuous, with cold water, or a weak solution of alum: many instances of this have occurred without being followed by any ill consequences (see Prout, Brodie, Watson). Bloody urine is, however, generally attended with some degree of danger.

The Treatment must be varied according to the different disorders from which it arises, and of which it for the most is only a symptom (see Disease of the Kidney, and Inflammation of the Bladder, Gravel, &c.) As a general mode of treatment, where bloody urine occurs in a full habit, and is accompanied with pain, bleeding from the loins, by cupping or the application of leeches, should be had recourse to, and mild aperients, as cream of tartar, rhubarb, manna, and confection of senna, should be given, with cold diluent drinks; and complete rest observed. Where the discharge of blood is not shortly controlled, an injection of cold water into the bowels should be administered. Pills of acetate of lead, No 55, the mixture of gallic acid, No. 59, Ruspini's styptic, extract of Rhatany root, or infusion of matico or gall-nuts, may be tried. A case of voiding bloody urine is mentioned in the eighth volume of Medical Facts and Observations, where, after all medicine had failed, the patient was cured by taking a decoction of peach leaves, made by boiling an ounce of dried peach leaves in a quart of water gently down to a pint and a half, of which a pint was taken daily (Buchan.)

Where the bleeding is accompanied by debility, bark and mineral acids should be given, as also the muriated tincture of iron, and a nutritious diet adopted: where it depends on stone in the bladder, the cure will only be effected by an operation.

INCONTINENCE OF URINE is an involuntary discharge of urine from the bladder, with or without consciousness.

It may arise from some injury, or mechanical cause, from preternatural contraction of the muscular coats of the bladder, from debility of the sphincter, or from paralysis of the lower extremities.

If it arises from injury, this must be remedied according to its nature, and if after the operation for stone, the parts by care will gradually recover; but in the female, where there is a communication between the bladder and vagina, it is almost irremediable. It not unfrequently arises from over distension of the bladder, or a loaded state of the lower bowel, and is relieved by voiding the urine at regular intervals, or where the bowels are in fault, by mild purgatives and enemas: when it is accompanied by spasm, moderate doses of hyoscyamus or other sedatives, with mucilaginous drinks, should be given, and repeated blisters applied to the loins; or they should be rubbed with a solution of tartar emetic, and an opium suppository of one or more grains of opium introduced into the bowel at night, and the bowels regulated by castor oil.

Incontinence of urine occurring in advanced age is often the result of imperfectly emptying the bladder, to which better attention should be called, and mild tonics and astringents given, as a scruple of alum twice a day in any light bitter infusion, with from ten to twenty minims of tincture of cantharides. The loins should be sponged with vinegar and water, and well rubbed afterwards: or the tartar emetic solution may be applied. It will be useful to wear an apparatus or bottle, to preserve the individual from wet.*

Incontinence of urine occurring in young persons and children, more particularly during the night, has been attributed to a copious secretion of urine, together with so sound a sleep that they are not disturbed from it by the feeling of a distended bladder. This is not unfrequently accompanied by deranged digestion: a purgative of calomel and rhubarb should therefore be given twice or thrice a week: a blister may be applied over the sacrum, and only a moderate quantity of drink allowed, and that chiefly in the earlier part of the day. When it takes place at a particular hour, they should be awakened previously, to make water, to prevent their wetting the bed. Daily immersion in the salt water hip-bath should be tried, beginning with it tepid. Where there is debility, tonics combined with the mineral acids may be beneficially given, as mixtures No. 124, 125, 125*a*: afterwards, the muriated tincture of iron, in full doses, proportioned to the age, either in water or in the infusion of chiretta, will be appropriate.

Retention of urine.—In this disease the urine is retained in the bladder from inability to expel it. There will generally be a fulness of the lower part of the abdomen, which is painful on pressure; sometimes there will be violent straining to make water, when only a few drops will escape; at other times, a moderate quantity will be voided, sufficient to afford temporary relief, the bladder yet being full: and this circumstance is very apt to mislead. Sudden inability of the organ to expel its contents is not an unfrequent complaint in elderly people.

---

* These are admirably constructed by Mr. Bourjeaurd, 11, Davies Street, Berkeley Square.

Retention of urine may arise from over distension of the bladder, either from the habit of neglecting to make water, or from an individual being so excited, and his attention so abstracted, as not to be conscious of the call; or it may be caused by exposure to severe cold, by some accidental cause, as a fall or blow, by drinking hard (malt liquor is said to predispose to it), or by local causes, as a loaded state of bowels, stricture of the urethra, enlarged prostate gland, or a stone blocking up the passage.

Retention of urine is often a cause of much distress and alarm, and is not void of danger. The patient's abdomen should be fomented, or he should be placed in a hot hip-bath, and the bowels opened by a purgative enema, and afterwards, if there be pain, an opiate enema should be administered, and the bowels kept in an open state by a mild aperient mixture of tartrate of potash and magnesia, No. 23. Where the retention is the result of mere inertness of the bladder, the bowels having been attended to, fifteen minims of the muriated tincture of iron should be given every ten minutes in a spoonful of camphor mixture or gin and water, to the extent of six or eight doses; and now and then suddenly dashing the belly with cold water will cause contraction of the bladder. These means not succeeding, the urine should, if possible, be drawn off by the catheter, and afterwards care taken that the bladder does not become distended. To assist the bladder to recover its tone, the Tinctura Lyttæ is a useful medicine, in doses of from twenty to twenty-five minims twice a day in some mucilaginous drink, which should be continued till it causes smarting in passing urine.

"In all obstructions of urine the bowels ought to be kept open. This is not, however, to be effected by strong purgatives, but by emollient clysters and mild aperients. Clysters in these cases not only open the bowels, but answer the purpose of an internal fomentation. In almost all cases of this kind, whether arising from stricture, gravel, inflammation, or spasm, opiates will prove highly serviceable, and ought therefore to be administered not only by the mouth, in doses of half a grain or a grain every three or four hours, but likewise in clysters in doses of three or four grains, dissolved in gruel or barley water, and repeated occasionally. The muriated tincture of iron is a valuable remedy. Lastly, tobacco clysters may be employed in desperate cases; and these will sometimes succeed after all other means have failed" (Editor of the last edition of Buchan).

SUPPRESSION OF URINE.—Inability to pass urine from absence of the secretion is to be distinguished from retention where the bladder is full. This disease more commonly occurs to persons who are advanced in life.

"If no urine be separated from the blood, coma soon supervenes, and death. It is believed that these consequences result from detention of urea in the system. Urea is a mere excrement, which in health is removed from the blood by the kidneys as fast as it enters that fluid. When it is not so carried off, it accumulates in the blood, circulates with it to every part of the body, and acts as a poison especially on the brain" (Watson's Lectures.)

Symptoms.—Unavailing efforts to pass urine, with restlessness or uneasiness rather than pain, followed by rigor or shivering, sense of weight in the loins and lower extremities, frequent pulse, heat of skin, flushed face, head-ache, nausea and vomiting, accompanied by drowsiness. Sometimes there is no complaint except nausea and drowsiness, with a slow pulse; and now and then these symptoms are preceded by a discharge of bloody urine for a day or two.

The disease is mostly a consequence of disease of the kidney, as congestion or inflammation: it is immediately excited by accidental causes, such as small stones or gravel obstructing the passage of urine into the bladder (in which cases pain is mostly felt), or by exposure to cold, and occasionally by taking subacid spirituous drinks, (as punch), particularly in gouty persons.

Treatment.—This is a most formidable disease, and ought not to be confined to domestic practice, for if relief be not obtained within two or three days, the patient becomes comatose and dies.

When the practice is not contraindicated by extreme debility, eight or ten ounces of blood should be taken from the loins by cupping, and a laxative enema administered. If this cannot be done, flannels wrung out of hot water, and passed round the loins and over the belly, should be applied, and two of the following pills taken every four hours:—

Take Calomel, one grain; James's Powder, two grains; Compound Ipecacuanha Powder, five grains.

Mix and make into two pills with mucilage, to be washed down with plentiful diluent drinks. Lastly, an enema of tobacco may be administered, made of one scruple of tobacco infused in a pint of boiling water. Strong diuretics, as turpentine, have been recommended, as has also cantharides in substance, (by Dr. Elliotson) in doses of one grain every eight hours.

STRANGURY, or temporary suppression of urine, is not unfrequently caused by the application of a blister; this will generally be relieved by fomentation, and demulcent drinks taken freely.

WEN

Is an encysted tumour, mostly situated on the head or neck, and containing a suetty or curd-like substance. Wens are usually harmless, and, except from their situation or unsightliness, do not require interfering with. From their being contained in a membranous bag or cyst, they are for the most part out of the influence of any local application. Bathing them with a saturated solution of salt in water two or three times a day for several weeks, or painting them over with the compound tincture of iodine for a time, and afterwards bathing them with the discutient lotions No. 140 and No. 149, has been recommended; but the most certain mode of proceeding is their being extirpated by a surgeon: the operation is neither difficult nor dangerous.

WHITLOW.

Whitlow is a painful swelling upon the last joint of the finger, which runs on to the formation of matter, surrounding the nail. It arises sometimes without any apparent cause, but mostly from some source of irritation, as a hang-nail or ag-nail, and not unfrequently from a splinter; and, in washerwomen, from a crack at the end of the finger becoming irritated by the impure soda or pearlash; and occasionally from a bruise. Commonly matter forms under the nail, and, being unable to make its way through so hard a substance, burrows to the end of the finger, causing excessive pain; and at length an abscess is formed more or less round the nail, which bursts, and the matter is discharged. The new scarf skin being formed, the old one may be peeled off; at other times the true skin is ulcerated, and a fungous excrescence sprouts out, which is tightly girt by the scarf skin, and is excessively tender.

Treatment.—On the occurrence of the throbbing pain, the finger should be placed in a warm bread-and-water poultice, and, as soon as the skin rises like a blister, a piece should be snipped out, to enable the watery matter to escape, and the poultice continued for a day or two. But when the fungous excrescence sprouts out, a portion of the nail should be scraped thin and removed, as well as the whole of the surrounding scarf skin: this will afford great relief; and the finger should then be kept in a poultice, or the water dressing, for a few days. When a whitlow comes on without any assignable cause, there is mostly some constitutional derangement; and it often happens that whitlows will occur on several fingers one after another. The general health in these cases should be attended to. Where a whitlow has run round the nail, the nail is mostly destroyed, and will be pushed off as the new nail is formed and continues to grow.

There are other abscesses which form at the ends of the fingers, and have been termed whitlows: they require deep incisions, and the careful and prompt attention of the surgeon, or the nail-joint, may be lost.

WORMS.

The human intestines are infested by five kinds of worms: the round worm, the common thread worm, the long thread worm, the common tape worm, and the broad tape worm.

THE ROUND WORM resembles in appearance the common earth worm, and varies in length from five or six to twelve inches. The earth worm is redder than the intestinal worm, and less pointed at its two ends; it has rows of little projections, like bristles, upon its under surface, which appear to serve for the purpose of crawling: in the round intestinal worm there is nothing resembling this. Round worms inhabit the small intestines, but occasioanlly crawl upwards into the stomach, or downwards into the large intestines; consequently they may be vomited in the former case, and passed by stool in the latter. A worm has been known to crawl into the larynx and cause strangulation. Large numbers of them are sometimes voided by the same individual; at other times there are one or two only.

THE COMMON OR SMALL THREAD WORM resembles the round worm except in size, being only about half an inch long. Thread worms live principally in the rectum, where vast numbers (thousands) are sometimes found; they pass out in balls, or entangled in portions of the excrement. Occasionally they crawl out, causing intolerable irritation, itching, and distress. These worms chiefly exist during infancy and childhood, though they sometimes torment adults.

THE LONG THREAD WORMS are from an inch to an inch and a half long, and are frequently found in great numbers at the beginning of the large intestines (the cœcum).

TAPE WORM.—The common variety is composed of many pieces curiously articulated together; each piece or joint is nearly square, having an opening on one side,—the opening being on the opposite side of each succeeding piece. This worm often measures upwards of twenty feet in length: it has the power of motion, and its movements are felt by the patient. It is more usually found in adults.

THE BROAD TAPE WORM differs from the preceding in its joints being shorter and broader, and the opening being situated in the middle of each joint instead of the side. Fifteen feet is presumed to be its average length. The geographical distribution of these two species of tape worm forms a curious part of their history. In England, Holland, and Germany, the former is common, but the latter is rarely or never seen. In Russia, Poland, and Switzerland, the reverse is the case. In France both species are common.

Of the generation of human intestinal worms little is known. There are certain circumstances which appear to favour their production, as eating unwholesome food and unripe fruit. They prevail most in persons who are feeble and unhealthy, and who secrete a large quantity of mucus; they do, however, sometimes exist in the robust and healthy. They are more commonly met with in those who live in moist damp atmospheres: hence they are very frequent in Holland and some parts of Switzerland.

Symptoms.—These are for the most part very equivocal, and appear in other intestinal disorders; they can, therefore, only be considered certain when accompanied by the expulsion of worms or portions of them. The general symptoms are colicky pains, swelling and hardness of the belly, picking of the nose in consequence of itching and irritation there and in the fundament, foulness of breath, irregular bowels, voracious or impaired appetite, grinding of the teeth at night, short dry cough, slow fever, irregular pulse, giddiness and indistinctness of vision, and sometimes convulsions.

Treatment.—For the round worm active purgatives and tonics are the most appropriate, as calomel, one, two, or three grains, combined with double the quantity of compound scammony or jalap powder, taken twice or thrice a week; and twice a day a dose, proportioned to the age, of some of the preparations of iron, as steel wine, tartrate of iron, muriated tincture of iron, in water with sugar, or the mixtures No. 128 or 129. Or the belly may be rubbed with the croton oil liniment, No. 136*a*; and, instead of the purgative, common salt in half-drachm doses, dissolved in water and taken every morning, is spoken of as a good remedy. The same treatment is applicable to the long thread worm. For the small thread worm, enemas of strong bitter infusions, as of chamomile, gentian, or quassia; or common salt and water, or the muriated tincture of iron in the proportion of half an ounce to half a pint of water, may be used. The enema should be in large quantity, and tepid, and administered through a long pipe, very gradually, so as to distend the bowel, and, if possible, obtain the retention of the liquid for some time. If administered carelessly and hurriedly, it will be of no avail; it should be repeated every third day for three or four times. The general health should be attended to, and an occasional purgative given. For tape worm, spirits of turpentine is an excellent remedy: it is better given in half-ounce doses, followed by the same quantity of castor oil; or the two may be combined. Turpentine is apt to stimulate the brain and urinary organs, and is therefore not appropriate for children except in small doses, repeated three times a day, with an occasional purgative. Kousso is much lauded as a most efficient remedy (see Kousso, page 148). The decoction of cabbage-tree bark (see p. 128), and of pomegranate bark (p. 125), are also recommended. Whatever remedy is given, the diet should be carefully regulated, and plenty of salt taken, as also the mineral acids with tonics, as Mixtures No. 124, 126, or 127, to prevent the re-formation of the worms.

Wounds.

Wounds may be cuts, stabs, bruised wounds, torn, rent, or lacerated wounds, or punctured wounds. A clean cut may be made by a knife, or any sharp instrument or a piece of glass; but when made by a chisel, axe, or hoop, the edge is forced in with some violence, and forms a torn wound.

A clean cut or chop.—The blood should be staunched by bathing the part with cold water, and all extraneous matters cleared away with a soft sponge. The edges or sides of the wound should then be brought together as neatly and closely as possible, and kept in that position by strips or straps of sticking plaster, leaving a space between each strip of plaster for the escape of any blood or fluid. When a wound is of any magnitude, and the edges gape, or where there is a piece of skin not quite separated, stitches may be usefully applied, together with plasters. Stitches are formed by passing a needle and thread about a quarter of an inch from the edge of the wound, from without inwards on one side, and from within outwards on the opposite one, and then fastening the ends of the thread together with sufficient tightness to prevent the surfaces from separating. One or more stitches should be made, according to the extent of the cut, an inch or more apart from each other, and intermediately the parts should be supported by strips of adhesive plaster; and if the cut be on a limb, a roller should be gently passed round. "The stitches must not be drawn or dragged together with too great force, or they may cut through the parts; neither should they remain in too long: they will generally have answered every useful purpose in forty-eight hours; but where they do not cause irritation, they may be left in for three or four days." (Fergusson.) They should then be removed by cutting the thread, and drawing them away by the knot. Where stitches are used, it is not always requisite to apply a bandage: the simpler the dressing the better; and a piece of lint, spread thinly with cerate, and laid over the wound, will generally be sufficient. If the wound be on a limb, the ends of the plaster should not overlap each other when passed round, as the swelling which usually succeeds a wound would render the plaster a tight and painful band, which might be productive of mischief. If adhesive (sticking) plaster of any kind is not immediately procurable, a band of tow or linen may be bound round, and smeared with gum water or the white of an egg; or the oozing of the blood itself, with the covering, will form a firm compress. Should the band become tight and cause pain, in consequence of the swelling, it is not necessary that it should be removed; but a blade of a pair of scissors should be cautiously passed beneath it on the opposite side to the wound, and it should there be cut completely across: this generally affords relief, and the dressing will require no further meddling with for four or five days, when the wound will be found nearly healed. Should the wound become painful and throb, there being perhaps at the same time a general feeling of chilliness, the dressing either does not agree with it, or there may be matter formed which cannot escape: in this case the dressing must be removed, which is better done by soaking the part in warm water, and afterwards enveloping it in a soft warm poultice, or by applying layers of lint moistened with warm water, and over all oilsilk. If the wound be not inflamed (that is, red and tender), and if the discharge be good, of the consistence of cream, and custard colour, the dressing may be reapplied; but if the edges are red and inflamed, or pale and flabby, the wound gaping, and the discharge thin and smelling offensively, a single strap of adhesive plaster should be applied to keep the edges together, and the wound covered with a warm poultice till the pain and inflammation cease, and the matter be of a good kind: then the adhesive plaster will be most appropriate.

A CLEAN STAB, although not causing any serious mischief, generally does not heal so readily as a cut, because it often unites near the surface, whilst matter is formed at the bottom; and therefore, although for some days it may seem to recover very steadily, it then becomes painful, the wound opens, and a gush of matter follows,—and this may be repeated once or twice before the cure is completed.

A TORN OR LACERATED WOUND may be caused by a hook or nail, or any blunt instrument. The wound and torn portion must be cleared as completely as possible from all extraneous matter and blood with a sponge and water, and laid in the situation whence it was torn, and the edges of the wound brought together by one or more stitches and straps of sticking plaster, and the whole covered by a poultice or the water dressing. Where parts are torn, or stripped, provided a portion remains united, they may be managed in this way, with every probability of union taking place. The nose, when nearly separated from the face, has been united by careful adjustment of the parts.

BRUISED WOUNDS may be treated, like clean cuts, with adhesive plaster; this, however, rarely succeeds, as the life of the bruised part is more or less destroyed: hence it usually sloughs away, and must be separated from the sound part before the sore can heal. A warm bread and water poultice should be applied, to moderate the inflammation. As soon as matter begins to form, and the dead parts to separate, a linseed-meal poultice may be substituted for the bread and water one, and its use continued till the slough separates and the gap is filled up with granulations; and then the wound is to be dressed with adhesive plaster, or the water dressing, as directed for ulcers (which see).

WOUNDS FROM GUNPOWDER, or the accidental discharge of fire-arms, are accompanied by much bruising and laceration. They rarely bleed much, unless some large vessel be torn, in which case surgical aid should be sought without delay, and in the meantime the wounded parts should be bound up in wet cloths. If slight, they should be treated in the manner directed for torn or bruised wounds.

SCRATCHES are shallow rents not penetrating through the true skin; but, if irritated by filth of any kind, they often become of serious consequence, and sometimes fatal. However trifling in appearance, it is better that they should be kept covered, clean, and dry, until they are healed. Should they become inflamed and swell to any extent, no time should be lost in applying to a surgeon, the part in the meantime being wrapped up either in a large bread and water poultice, or in hot moist flannels, and a good number of leeches applied some distance from each other. "But if neither doctor nor leeches can be obtained, the skin where most inflamed may be cut through till the blood comes, but not deeper, for fear of doing mischief, with a sharp knife or razor, here and there, to the extent of an inch or an inch and a half. It is only justifiable to make these cuts if no medical man can be got; and then valuable lives may be saved by proceeding cautiously in this way. After this treatment the skin sloughs; and continual poulticing is requisite till all the sloughs come away, and the wounds have healed" (South.)

PUNCTURED WOUNDS from thorns or splinters are often followed by serious consequences. It is better to pull the thorn out, if it can be readily done; but more serious injury is often the consequence of too much poking with the point of a knife or needle, and violently squeezing the part, than from leaving it alone. Occasionally, whether the thorn or splinter be pulled out or not at first, very serious inflammation is set up in the part, and symptoms of locked-jaw may come on; or the patient may die from irritative fever, without or with well-marked locked-jaw. Mr. South has known instances where the jaw-muscles were stiffened for an hour and a half after a thorn had been run into the finger and been pulled out; and in some cases death has ensued. If it be determined to have it out at once, and it cannot be readily got at, the nail should be scraped as thin as possible, and then a cut made with a knife or lancet in the course of the splinter. If it cannot then be laid hold of, the wound will have been improved by making a more ready escape for the splinter, and for any matter that may form; thus lessening the chance of constitutional excitement. If matters go on untowardly, and the finger or toe becomes painful and tender, and swells and throbs violently, the pain running up the limb, with swelling, sometimes marked with one or two red lines, the case requires prompt attention. Leeches must be freely and promptly applied again and again, in the neighbourhood of the wound, which should be fomented and enveloped in a large bread and water poultice, and four or five grains of calomel given, followed by a dose of the compound senna mixture, No. 20. Sometimes the wound is very tender; when, if it be on the finger or toe, these should at once be cut into very deeply. At other times it is not tender, but some part a little above it is, which, if swollen or red, and apparently containing matter, should be cut into. This proceeding, whether there be matter formed or not, usually affords relief, and the inflammation gradually subsides. The principal cause of all the mischief, when the finger, hand, toe, or foot has been pricked, is, that the scarf-skin is so thick, that it does not readily yield; and the sensible skin and parts below inflame and swell, and are tightly bound down and squeezed as if in a vice. This explains the relief that almost immediately follows cutting through the skin, as thereby the inflamed part is relieved from pressure, and the confined matter can escape, instead of being compelled to burrow till it finds a part where the skin is thinner, and it can burst through.

WOUNDS FROM FISH HOOKS.—"Persons unskilled in such matters think it proper to wriggle the hook about, and then pull it out, as they would from a fish's mouth. This is an unfitting and painful mode of treatment, for the barb of the hook cannot be freed from the flesh without dragging away some of the soft parts in which it is entangled. The readiest and least painful mode of managing this accident is, first to grasp the hook tightly, and with a sharp knife rip off the line and clear the stem of the binding silk; then press the blunt end downwards, so that the point should be made to travel onwards till it penetrates the skin and frees the barbed point, which is then to be taken hold of, and the hook drawn out through the last made wound. Rarely any inconvenience, beyond a few hours smarting, follows the accident if thus managed. A poultice should be applied to the part if painful" (South.)

YELLOW FEVER.

A fever frequent in warm climates, characterised by yellowness of the skin, and vomiting of a dark fluid. It has been called Bulam, Gibraltar, or African fever, and black vomit. In proportion to the warmth of the climate the fever increases in intensity.

Symptoms.—In addition to those of fever generally, there is severe head-ache, the eyes being red, glistening, and suffused, and affected with a smarting sensation; after fifteen or twenty hours, pain at the pit of the stomach comes on, with nausea and vomiting, which is often incessant, and aggravated by drink. The skin of the chest is red, and afterwards of a yellow tint, the eyes assuming the same colour, as does also the skin generally, the hue becoming deeper in fatal cases: these symptoms are followed by extreme restlessness and anxiety. The matter vomited is at first yellow and slimy, and afterwards black, like coffee-grounds; the dejections are blue or black. The secretion of urine is often suppressed. The strength fails, the temperature of the skin diminishes, the limbs become cold, and exhaustion too frequently follows. The usual duration of the disease is from five to seven days. When the sixth day passes without the occurrence of the black vomit, when a natural sleep takes place of some hours duration, and when there is a free discharge of urine, there is great hope of recovery. On the contrary, when there is a sudden oppression of all the functions, a disposition to faint on the slightest exertion, frequent sighing with passive sadness of the countenance, and continued black vomiting, few or none recover. No disease, however, exhibits symptoms of greater variety, and less to be depended on; for sometimes, when the patient is apparently going on favourably, the disease suddenly changes for the worse, and now and then a return of all the unfavourable symptoms occurs, followed by unexpected death.

The disease attacks Europeans newly arrived in hot climates, in preference to the natives, or those long resident; and those of a robust frame rather than those of a spare one. It is excited into action by intemperance, excessive fatigue in the sun, checked perspiration from currents of air, sleeping exposed to the night dews, and by costiveness. The essential character of the disease is violent inflammation of the stomach and duodenum; and the black vomit consists of the vitiated secretions of the stomach, mixed with blood effused from its surface, which gives it the coffee-grounds' appearance.

Treatment.—Until efficient medical aid can be obtained, the following treatment will be most appropriate. The bowels should be unloaded by a large dose of calomel (ten grains) followed by a dose of the compound senna mixture No. 20, or by one, two, or three drops of croton oil in some bread crumb: either of these should be assisted in their operation by the administration of domestic enemas, repeated every hour or half hour, if requisite, till thorough evacuation of the contents of the alimentary canal is effected. Saline medicines, with an excess of alkali, should then be given, as the mixture No. 28, or 112, or Dr. Stevens' mixture—"Take chloride of sodium (table salt), 2 drachms; chlorate of potash, 2 scruples; carbonate of soda, half a drachm; water, 6 ounces; mix: two table-spoonfuls to be given every hour or two. With either of these medicines, a solution of chlorate of potash, or bicarbonate of soda, may be taken, one drachm of either to a pint of water, as common drink, flavoured or not with lemon-peel, or orange marmalade. If there be pain or tenderness at the pit of the stomach, from 12 to 20 leeches should be applied, and on their removal, a large hot poultice, care being taken that the leech-bites do not bleed so profusely as to cause fainting to any extent: if the sickness be distressing, a blister along the entire length of the spine has been recommended. The surface of the body should be sponged at intervals with cold or tepid water, as may be most agreeable to the patient. In the event of extreme prostration or feebleness, try the following:—Take sesquicarbonate of ammonia, one drachm; chlorate of potash, 2 drachms; laudanum, one drachm; cinnamon or peppermint water, 12 ounces; one ounce to be given every hour. The strength is to be upheld by preparations of barley, sago, tapioca, or Indian arrow-root, flavoured with wine or brandy, and any diluent drinks may be freely allowed.

Preventives are the observance of strict temperance, moderate but nourishing diet, cold bathing, regular bowels, and keeping an equable temperature on the surface, by wearing thin flannel under-clothing, and avoiding the exciting causes.

FORMULÆ OF USEFUL PRESCRIPTIONS

REFERRED TO IN THE BODY OF THE WORK.

---

1. Carbonate of Magnesia, one drachm; Sal-volatile, three drachms; Compound Tincture of Lavender, two drachms; Water, sufficient to make six ounces. Mix. One or two table-spoonfuls for a dose. In heart-burn or water-brash, twice or thrice a day, or before and after dinner.
2. Bicarbonate of Magnesia Water, half an ounce; Water, half an ounce; Compound Tincture of Cardamoms, one drachm. Mix for a draught. In heart-burn.
3. Brandish's Alkaline Solution, half an ounce; Infusion of Chiretta, five ounces; Compound Spirit of Aniseed, three drachms; Syrup of Orange-peel, half an ounce. Mix. Two table-spoonfuls twice or thrice a day. In red urinary sediments.
4. Chalk Mixture, six ounces; Tincture of Hop, one ounce; Compound Tincture of Cardamoms, seven drachms; Wine of Opium, one drachm. Mix. Take a table-spoonful every six hours. In diarrhœa dependent on acidity.
5. Bicarbonate of Magnesia Water, one ounce; Powdered Rhubarb, from five to ten grains; Syrup of Ginger, one drachm. Mix for a draught. This is equal to Gregory's powder in the liquid form, and is an excellent mode of taking Rhubarb and Magnesia.
6. Sulphate of Magnesia, one ounce; Carbonate of Magnesia, one drachm; Peppermint Water, Compound Infusion of Gentian, of each four ounces. Mix. Two table-spoonfuls for a dose.
7. Dried Carbonate of Soda, one drachm; Cinnamon Powder, Castile Soap, of each half a drachm; Peruvian Balsam, sufficient to make a mass. Divide into thirty pills, and take two twice or thrice a day. In heart-burn or water-brash.
8. Bicarbonate of Soda, ten grains; Infusion of Calumba, one ounce; Creosote, one minim; Syrup of Ginger, one drachm. Mix for a draught, to be taken every six hours. In acidity of the stomach with vomiting.

9. Magnesia, six grains; Bicarbonate of Potash, ten grains; Tartrate of Potash, fifteen grains. Mix. Take every night, or twice a day in a glass of water (Brodie).

10. Acetous Extract of Colchicum, one grain; Mercurial Pill, two grains; Extract of Henbane, two grains. Mix for a pill.

11. Lemon-juice, one ounce and a half; Bicarbonate of Potash, one drachm; Sulphate of Magnesia, six drachms; Wine of Colchicum Seed, Wine of Colchicum Root, of each one drachm and a half; Syrup of Saffron, three drachms; Water, seven ounces. Mix. Three table-spoonfuls two or three times a day. In rheumatic and gouty pains (Vance).

Dinner Pills.

12. Watery Extract of Aloes, Gum Mastic, of each half a drachm. Mix. Divide into twenty pills, one to be taken immediately before or *during* dinner.

13. Decoction of Sarsaparilla, half a pint; Hydriodate of Potash, from ten grains to half a drachm. Mix. To be taken in divided doses during the day. In cases of rheumatic pains, add half a grain of Acetate of Morphia to the mixture.

14. Almond Emulsion, half a pint; Vinegar of Colchicum, half an ounce; Acetate of Morphia, one grain; Nitre, half a drachm. Mix. Take a table-spoonful every hour or two. In bronchitis (Graves).

15. Rhubarb coarsely powdered, one ounce; Brandish's Alkaline Solution, two pints. Macerate for a day or two, shaking it at intervals. Take one or two tea-spoonfuls every night in beer or gruel. In costiveness with flatulence.

15*a*. Acetous Extract of Colchicum, one grain; Compound Extract of Colocynth, two grains; Powder of Ipecacuanha, half a grain. Mix. Make a pill, to be taken every night. In muscular rheumatism.

16. Mercurial Pill, one grain; Compound Rhubarb Pill, three grains; Ipecacuanha Powder, half a grain. Mix for a pill, to be taken every night.

17. Mercurial Pill, one grain; Extract of Henbane, one grain; Compound Extract of Colocynth, two grains; Ipecacuanha Powder, half a grain. Mix for a pill.

18. Mercurial Pill, two grains and a half; Ipecacuanha Powder, half a grain; Confection of Opium, sufficient to make a pill.

19. Compound Galbanum Pill, Pill of Aloes and Myrrh, of each equal parts. Divide into five-grain pills.

19*a*. Tartar Emetic, one grain; Extract of Henbane, Extract of Gentian, of each twelve grains. Mix well together and divide into eight pills. Take one three times a day for bilious or sick head-ache.

Compound Senna Mixture.

20. Sulphate of Magnesia, one ounce; Nitrate of Potash, ten grains;

Extract of Liquorice, one scruple; Compound Infusion of Senna, five ounces and a half; Tincture of Senna or Jalap, three drachms; Spirit of Sal-volatile, one drachm. Mix. Two or three table-spoonfuls for a dose.

Senna Mixture with Compound Decoction of Aloes.

21. Compound Infusion of Senna, three ounces; Compound Decoction of Aloes, three ounces; Spirit of Sal-volatile, one drachm; Tartrate of Potash, or Tincture of Jalap, half an ounce. Mix. Two or three table-spoonfuls for a dose.

22. Compound Infusion of Senna, Compound Infusion of Gentian, of each three ounces; Spirit of Sal-volatile, one drachm; Manna, two drachms. Mix. One-fourth part for a draught.

23. Rochelle Salt or Tartrate of Potash, one ounce; Carbonate of Magnesia, one drachm; Mint Water or Peppermint Water, six ounces. Mix. A fourth-part for a dose.

23*a*. Muriate of Soda (Table Salt), Sulphate of Magnesia (Epsom Salt), Sulphate of Soda (Glauber's Salt), of each three ounces; or, in lieu of the Glauber's Salt, Sulphate of Potash, three ounces. Dry the salts with a gentle heat, and powder them separately; then mix them by trituration well together, and keep in a well-closed bottle. From one to four drachms dissolved in half a pint of water, and taken before breakfast, operates freely and safely.

24. Powdered Turkey Rhubarb, one drachm; Powdered Ipecacuanha, Powdered Scammony, of each sixteen grains; Sulphate of Zinc, twelve grains; Powdered Capsicum, fifteen grains. Mix carefully: then add Syrup enough to make a mass. Divide into twenty-four pills, two to be taken twice a day. In torpid bowels with debility.

25. Confection of Senna, two ounces; Cream of Tartar, half an ounce; Carbonate of Iron, two drachms; Syrup of Ginger, sufficient to form an Electuary, to which may be added two drachms of Prepared Sulphur. A tea-spoonful to be taken at noon, and on going to bed (Graves).

The value of the Carbonate of Iron as a tonic aperient has not been duly appreciated.

26. Compound Decoction of Aloes, one ounce; Sulphate of Magnesia, one drachm. Mix for an aperient draught after diarrhœa (Graves).

Saline Aperient Anodyne Mixture.

27. Sulphate of Magnesia, one ounce; Solution of Acetate of Ammonia, Water, of each three ounces; Laudanum, or Solution of Hydrochlorate of Morphia, one drachm. Mix. Take one-fourth part three times a day (Cooper).

Effervescing Saline Mixture.

28. Bicarbonate of Potash, two drachms; Syrup, two drachms

Distilled Water, six ounces. Mix. Two table-spoonfuls for a dose, to each of which add a table-spoonful of fresh Lemon-juice, or fifteen grains of Citric Acid previously dissolved in a table-spoonful of water: to be drunk in a state of effervescence.

29. Ox-gall, inspissated. Make into five-grain pills. Take from one to three, three times a day, when the secretion of bile is deficient, and the digestive mucous surface irritable (Copland).

30. Wine of Colchicum Seed, Tincture of Rhubarb, Tincture of Aloes, Spirit of Nutmeg, of each half an ounce; Infusion of Rhubarb, six ounces. Mix. Two table-spoonfuls to be taken every three or four hours till it acts. A useful purgative in gouty and rheumatic habits.

31. Powdered Rhubarb, Magnesia, of each fifteen grains; Peppermint Water, ten drachms; Laudanum, fifteen minims; Sal-volatile, twenty minims; Syrup of Ginger, Tincture of Rhubarb, of each one drachm. Mix for a draught, in colic.

GREGORY'S POWDER; COMPOUND RHUBARB POWDER.

31*a*. Magnesia, one pound; Ginger in fine powder, two ounces; Rhubarb in fine powder, four ounces. Mix thoroughly. Dose for children, five grains to twelve; for adults, one to two scruples.

APERIENT WITH NARCOTIC.

32. Extract of Opium, six grains; Calomel, twelve grains; Compound Extract of Colocynth, half a drachm. Mix well, and divide into twelve pills; one to be taken at bed-time.

APERIENT WITH SULPHUR.

33. Bitartrate of Potash (Cream of Tartar), one ounce; Prepared Sulphur, half an ounce; Confection of Senna (Lenitive Electuary), three ounces; Syrup of Ginger, sufficient to form an electuary. Take a tea-spoonful every day, or twice a day, as may be required. In piles.

ACTIVE PURGATIVE PILLS.

34. Calomel, twenty-four grains; Croton Oil, three or four drops; Compound Extract of Colocynth, Extract of Henbane, of each twenty-four grains. Mix. Divide into twelve pills; one to be taken three times a day. In spasmodic and nervous disease.

34*a*. Calomel, three grains; Compound Gamboge Pill, six grains. Mix for two pills, to take occasionally for dropsy.

CROTON-OIL PILLS.

35. Croton Oil, three drops; Compound Extract of Colocynth, half a drachm. Mix carefully, and divide into six pills. One or two may be taken every three or four hours till the bowels act, or two at night occasionally for dropsy.

36. Extract of Elaterium, one grain; Extract of Colocynth, one scruple; Oil of Juniper, four drops. Mix. Divide into four pills, one or two for a dose. In dropsy.

37. Castor Oil, Oil of Turpentine, Mucilage of Gum Arabic, Cinnamon Water, of each half an ounce. Mix for a draught.

38. Sulphate of Magnesia, one ounce and a half; Compound Infusion of Roses, five ounces; Cinnamon Water, one ounce. Mix. Two table-spoonfuls for a dose. An elegant and mild aperient.

39. Oil of Turpentine and Castor Oil, of each three drachms; Barley Gruel, six ounces. Mix for an enema, to be administered two or three times a day in bleeding from the lower bowel. (See also 172.)

Calomel and Colocynth Pills.

40. Calomel, one scruple; Compound Extract of Colocynth, two scruples; Mix. Divide into twelve pills; one, two, or three, for a dose.

Calomel and Compound Rhubarb Pill.

40*a*. Calomel, one scruple; Compound Rhubarb Pill, two scruples. Mix. Divide into twelve pills; one, two, or three for a dose.

41. Mercurial Pill (Blue Pill), one scruple; Compound Extract of Colocynth, two scruples. Mix. Divide into twelve pills, one or two for a dose.

42. Mercurial Pill (Blue Pill), one scruple; Compound Rhubarb Pill, two scruples. Mix. Divide into twelve pills; one or two for a dose occasionally.

Mild Aperient Pill.

42*a*. Compound Extract of Colocynth, two scruples; Extract of Henbane, one scruple. Mix. Divide into twelve pills.

42*b*. Compound Rhubarb Pill, five grains. For an occasional mild pill at bed-time or before dinner.

43. Valerianate of Zinc, eight grains; Tincture of Valerian, two drachms; Orange-flower Water, three ounces and a half; Syrup of Red Poppies, two drachms. Mix. A table-spoonful to be taken every six hours. An excellent mixture in nervous diseases.

44. Spirit of Sulphuric Ether, Compound Tincture of Lavender, of each half an ounce; Camphor Mixture, seven ounces. Mix. Two table-spoonfuls for a dose.

45. Sal-volatile, one drachm; Sulphuric Ether, Tincture of Belladonna, Laudanum, of each half a drachm; Camphor Mixture, twelve drachms. Mix for a draught. In angina pectoris, or breast-pang.

46. Peppermint Water, one ounce; Compound Tincture of Lavender, one drachm; Spirit of Caraway, half an ounce; Laudanum, twenty minims. Mix for a draught.

47. Cinnamon [illegible], three ounces; Spirit of Sulphuric Ether, Fœtid

Spirit of Ammonia, of each two drachms; Tincture of Castor, half an ounce; Tincture of Opium, half a drachm; Water, sufficient for six ounces. Mix. Take two table-spoonfuls every three or four hours.

48. Alum, powdered, ten grains; Ginger, powdered, five grains; Rhubarb, powdered, three grains. Mix for a powder, to be taken in a glass of water three or four times a day for the distressing flatulence which precedes a fit of asthma (Guy).

49. Sesquicarbonate of Ammonia, half a drachm; or Salvolatile, half an ounce; Compound Tincture of Cardamoms, one ounce; Water, five ounces. Mix. Two table-spoonfuls for a dose. In syncope and fainting. Half an ounce of Spirits of Sulphuric Ether may be added in lieu of half an ounce of the Compound Tincture of Cardamoms.

IMPERIAL DRINK.

50. Cream of Tartar, half an ounce; half a Lemon, with gratings of the rind; Sugar sufficient to make it palatable; Boiling Water, two pints: stir it occasionally till cold. For a cooling beverage in dropsy, &c.

51. Powdered Gum Guaiacum, one drachm; Powdered Bark, one drachm; Cream of Tartar, one ounce; Flowers of Sulphur, half an ounce; Powdered Ginger, one drachm; Syrup, sufficient to make an electuary. Dose, a tea-spoonful three times a day, for rheumatism (Graves).

CHELSEA PENSIONER.

52. Guaiacum, powdered, one drachm; Rhubarb, two drachms; Cream of Tartar, one ounce; Sulphur, two ounces; Powdered Nutmeg or Ginger, two drachms; Honey, one pound, or sufficient to form an electuary. Taken as 51.

DUTCH DROPS.

53. Oil of Turpentine, half an ounce; Spirits of Nitric Ether, half an ounce; Tincture of Guaiacum, one ounce; Oil of Amber, and Cloves, of each half a drachm. Mix. A tea-spoonful in water, or one drachm three times a day.

COMPOUND CHALK MIXTURE, NO. 2.

54. Chalk Mixture, five ounces and a half; Tincture of Cardamoms, half an ounce; Tincture of Opium, twenty-four minims. Mix. Two or three table-spoonfuls every four hours.

55. Acetate of Lead, Extract of Poppies, of each two grains. Mix for a pill, to be taken every three or four hours for hæmorrhage.

56. Alum in powder, one drachm and a half; Compound Infusion of Roses, seven ounces; Syrup of Roses, one ounce. Mix. Take one table-spoonful every three or four hours in cases of diarrhœa, and in painters' colic.

57. Sulphate of Zinc, one scruple; Infusion of Matico (made by infusing an ounce of the coarsely-powdered leaves in one pint of boiling water), half a pint; Mucilage of Gum, two drachms. Mix for an injection in old gleets and leucorrhœa.

COMPOUND CHALK MIXTURE.

58. Chalk Mixture, five ounces and a half; Compound Tincture of Cardamoms, Tincture of Catechu, of each three drachms; Laudanum, twenty minims. Mix. Two or three table-spoonfuls every four hours in diarrhœa.

59. Gallic Acid, twenty grains; Mucilage of Gum Arabic, Syrup of Red Poppies, of each two drachms; Water, three ounces and a half. Mix. Take one ounce every three or four hours in cases of discharge of blood from the bowels and bladder.

CHALK MIXTURE.

60. Prepared Chalk, half an ounce; Sugar, three drachms; Mucilage of Gum Arabic, one ounce and a half; Cinnamon Water, eighteen ounces. Mix. Dose, one to four table-spoonfuls.

CARMINATIVE MIXTURE *for Infants.*

61. Rhubarb powdered, Carbonate of Magnesia, of each one scruple; Tincture of Rhubarb, Syrup, of each one drachm; Sal-volatile, fifteen minims; Dill-seed Water, fourteen drachms. Mix. A tea-spoonful occasionally where a child's bowels are griped, or flatulency prevails. If there is a disposition to diarrhœa, add two minims of Laudanum.

62. Nitre (Nitrate of Potash), one drachm and a half; Digitalis in powder, twelve grains; Cream of Tartar, three drachms; Powder of Gum Arabic, two drachms; Sugar, one drachm. To be carefully powdered and mixed. Divide into twelve powders: take one in barley-water three or four times a day. Very beneficial in cases of inflamed bladder or urethra, with an aperient pill at bed-time.

63. Tincture of Buchu, half an ounce; Decoction of Uva Ursi, seven ounces and a half. Mix. Two table-spoonfuls four times a day in chronic catarrh of the bladder, and in mucous discharge from the vagina or urethra.

64. Mercurial Pill (Blue Pill), three grains; Powdered Squills, one grain; Powdered Digitalis, half a grain. Mix for a pill, to be given twice or thrice a day in anasarca.

64*a*. Calomel, one grain; Powdered Squills, Squill Pill, of each two grains. Mix for a pill, to be taken every night for ascites.

65. Decoction of Barley (Barley-water), one pint; Sugar, one ounce; Nitrate of Potash (Nitre), two drachms; Nitric Acid diluted, one drachm; Spirits of Nitric Ether, one ounce. Mix. Two table-spoonfuls to be taken every second hour (Graves).

66. Acetate of Potash, Vinegar of Colchicum, of each half an ounce;

Compound Spirit of Horse-radish, Compound Spirit of Juniper, Syrup of Orange-peel, of each half an ounce; Water, sufficient to make half a pint. Mix. Two table-spoonfuls for a dose, three times a day.

67. Spirit of Nitric Ether, Vinegar of Squills, of each one ounce; Infusion of Juniper, three ounces; Compound Spirit of Horse-radish, two ounces; Syrup of Ginger, one ounce. Mix. Take two table-spoonfuls two or three times a day (Neligan).

DECOCTION OF PAREIRA BRAVA (*Tonic Diuretic*).

68. Half an ounce of the Pareira brava; three pints of water. Simmer gently till reduced to one pint. Take a fourth part twice or thrice daily, or half a drachm of the extract in the form of pills (Brodie).

DECOCTION OF UVA URSI (*Astringent and Diuretic.*)

69. One ounce of Uva Ursi; one pint and a half of Water. Simmer gently to a pint. A fourth part twice or thrice a day (Elliotson).

INFUSION OF BUCHU (*Stimulating Diuretic*).

70. Leaves of Buchu (Diosma), half an ounce; Boiling Water, half a pint. Infuse for four hours in a covered vessel: strain. Take of the above infusion, seven ounces; Spirit of Juniper, one ounce. Mix. A fourth part to be taken twice or thrice a day.

71. Mercurial Pill, three grains; Compound Squill Pill, five grains; Powder of Digitalis, one grain; Syrup, a sufficient quantity to make two pills, to be taken every night.

72. Compound Squill Pill, Extract of Hemlock, of each half a drachm. Mix. Divide into twelve pills. Take one or two three times a day. In irritating cough (Guy).

COUGH APERIENT PILL.

73. Compound Squill Pill, two scruples; Compound Extract of Colocynth, one scruple; Ipecacuanha Powder, ten grains; Extract of Henbane or Hemlock, one scruple. Mix, and divide into twenty pills, two to be taken twice a day.

74. Compound Galbanum Pill, Squill Pill, of each half a drachm. Mix. Divide into twelve pills, two to be taken every night for asthma or spasmodic cough.

COUGH MIXTURE.

75. Oxymel, simple, one ounce; Syrup of Poppies, six drachms; Ipecacuanha Wine, half a drachm; Peppermint or other Aromatic Water, one ounce and a half; Water, sufficient to make six ounces. Mix. Take one table-spoonful four or five times a day when the cough is troublesome.

76. Mixture of Ammoniacum, six ounces; Bicarbonate of Potash, half a drachm; Camphorated Tincture of Opium, half an ounce;

Tincture of Henbane, one drachm; Ipecacuanha Wine, two drachms. Mix. A table-spoonful every hour or two in chronic cough (Graves).

APERIENT SULPHUR POWDER.

77. Prepared Sulphur, one scruple; Carbonate of Magnesia, ten grains; Compound Powder of Jalap, Ginger Powder, of each five grains. Mix.

MIXTURE OF ASSAFŒTIDA.

78. Assafœtida, two drachms; Water, one pint. Rub the assafœtida with the water gradually poured on till an emulsion is formed. Dose, one to two ounces.

79. Volatile Tincture of Valerian, six drachms; Syrup, two drachms; Camphor Mixture, enough to make six ounces. Mix. Or, where the bowels are sluggish, Compound Infusion of Senna may be substituted for the camphor mixture. Dose, two table-spoonfuls twice or thrice a day in nervous head-ache.

HYDROCYANIC ACID MIXTURE.

80. Hydrocyanic Acid (Scheele's), six minims; Tincture of Henbane, sixty minims; Almond Emulsion, six ounces. Mix. Take two table-spoonfuls three times a day in bronchial irritation (Graves).

81. Hydrocyanic Acid, three minims; Creasote, three minims; Spirit of Turpentine, ten minims; Mucilage of Gum Arabic, two drachms; Cinnamon Water, fourteen drachms. Mix. Half to be taken for a dose, and repeated, if necessary, in spasmodic asthma (Graves, Crampton).

82. Oxymel, one ounce; Tincture of Henbane, Sweet Spirits of Nitre, of each one or two drachms; Ipecacuanha Wine, one drachm; Cinnamon Water, two ounces; Water, sufficient to make six ounces. Mix. Take one table-spoonful three or four times a day when the cough is troublesome.

83. Powder of Ipecacuanha, four grains; Bicarbonate of Potash, two scruples; Liquor of Acetate of Ammonia, one ounce and a half; Syrup, two drachms; Water, sufficient to make half a pint. Mix. Take two table-spoonfuls every four hours. Where the cough is very troublesome, twenty drops of Laudanum may be added to the mixture.

COUGH SYRUP.

84. Honey, Treacle, and the best Vinegar, of each four ounces. Let them simmer gently in an earthen vessel over a clear fire for a few minutes, stirring them well together; then add a dessert-spoonful of Compound Tincture of Camphor and of Ipecacuanha Wine; mix well. A table-spoonful may be taken every four hours for an adult, and a tea-spoonful for a child.

85. Nitrate of Potash, two drachms; Tartar Emetic, one grain; Camphorated Tincture of Opium (Compound Tincture of Camphor),

half an ounce; Almond Emulsion, twelve ounces. Mix. (Or, instead of the emulsion, ten ounces of Water; Mucilage of Gum, Syrup, of each one ounce). A table-spoonful every hour (Graves).

86. Syrup of Tolu, Mucilage of Gum Arabic, of each one ounce and a half; Ipecacuanha Wine, one drachm; Tincture of Squills, one drachm; Water, sufficient to make six ounces. Mix. A table-spoonful every four hours. If the cough is very troublesome, thirty drops of laudanum may be added.

87. Confection of Roses, two ounces; Balsam of Copaiba, half an ounce; Dilute Sulphuric Acid, one drachm. Mix. A tea-spoonful to be taken three or four times a day in the chronic cough of elderly people.

Fuller's Spanish Infusion.

88. Spanish Liquorice cut into small pieces, one ounce; Bicarbonate of Potash, two drachms; Boiling Water, one quart. Let the mixture stand till the liquorice is dissolved, then add one ounce and a half of Syrup of Poppies (or half a drachm of Laudanum). Mix well. A wine-glassful three or four times a day (Buchan).

89. Decoction of Dandelion Root, six ounces; Extract of Dandelion Root, two drachms; Dilute Nitric Acid, one drachm. Mix. Two table-spoonfuls three times a day as an alterative and tonic.

90. Infusion of Cascarilla, seventeen ounces; Vinegar of Squills, one ounce; Compound Tincture of Camphor, two ounces. Mix. Two or three table-spoonfuls twice a day. In chronic affection of the mucous membrane of the lungs.

91. Sesquicarbonate of Ammonia, half a drachm; Tincture of Squills, one drachm; Ipecacuanha Wine, forty minims; Tincture of Henbane or Hop, two drachms; Syrup, two drachms; Camphor Mixture, sufficient to make half a pint. Mix. Two table-spoonfuls to be taken every four hours in chronic cough.

92. Oxymel of Squills, six drachms; Decoction of Polygala Senega, five ounces; Spirit of Juniper, from three to six drachms. Mix. Two table-spoonfuls every four hours. In chronic cough or influenza.

93. Grey Powder (Mercury with Chalk), one or two grains; Ipecacuanha Powder, half a grain; Rhubarb Powder, two or three grains. Mix for a powder. A good alterative aperient for children in marasmus or eruptions on the skin.

94. Acetate of Morphia, one grain; Distilled Water, one ounce. Mix. Take a tea-spoonful on going to bed, and repeat, it if necessary, every hour or two, to the extent of three doses.

95. Muriate of Morphia, one-fourth of a grain; Extract of Liquorice, two grains. Mix for a pill, to be taken at bed-time to procure sleep.

96. Extract of Henbane, five grains; Camphor Mixture, one ounce;

Solution ot Acetate of Ammonia, Cinnamon Water, of each two drachms. Mix for a night draught where opium is inadmissible.

97. Extract of Hemlock, Compound Powder of Ipecacuanha, of each ten grains; Syrup of Ginger, sufficient to make four pills. One or two at bed-time.

98. Ipecacuanha Wine, five drops; Laudanum, one drop; Bicarbonate of Potash, two grains; Syrup, half a drachm; Cinnamon Water, two drachms; Water, two drachms. Mix for a draught, to be taken every four hours with an occasional emetic and purgative.

99. Tartar Emetic, one grain; Laudanum, twenty drops; Syrup, two drachms; Water, sufficient to make two ounces. Mix. One or two tea-spoonfuls every night.

100. Alum, one scruple to half a drachm; Extract of Henbane, from ten to fifteen grains; Syrup of Poppies, two drachms; Dill-seed Water, and Water, of each two ounces. Mix. A dessert-spoonful every four or six hours.

101. Extract of Belladonna (Nightshade), three grains; Solution of Acetate of Ammonia, one ounce; Dill, Cinnamon, or Mint Water, three ounces; Syrup, half an ounce; Water, sufficient for six ounces. Mix. A tablespoonful three times a day for an adult, a tea-spoonful for a child four years old.

101*a*. Extract of Belladonna, two grains; Distilled Water, one ounce and a half. Nine to ten minims three times a day, as a prophylactic in scarlatina (Guy, p. 541).

102. Sesquicarbonate of Ammonia, ten grains; Camphor Mixture, one ounce and a half; Tincture of Opium, thirty minims. Mix for a draught, to be taken every four hours till sleep is procured in delirium tremens (Guy).

103. Sesquicarbonate of Ammonia, half a drachm; Sweet Spirit of Nitre, two drachms; Tincture of Opium, thirty minims; Camphor Mixture, six ounces. Mix. Two table-spoonfuls every two or three hours.

104. Laudanum, one drop; Carbonate of Soda, from three to five grains; Ipecacuanha Wine, from five to ten drops; Syrup, one drachm; Water, sufficient to make half an ounce. For a child a year old, three times a day in hooping-cough (Pearson).

105. Extract of Lettuce, Henbane, or Hemlock, half a drachm; Ipecacuanha powder, Compound Extract of Colocynth, of each twelve grains. Mix well. Divide into twelve pills, one to be taken three times a day (Jackson).

106. Mustard Flour, one ounce; Warm Water, a pint. Mix. A useful stimulating emetic when the vital powers are sinking.

107. Tartar Emetic, one grain; Ipecacuanha Powder, one scruple; Syrup, one drachm; Mint Water, ten drachms. Mix. For a common or general emetic.

108. Ipecacuanha Wine, half an ounce; or Wine of Tartrate of Antimony, half an ounce. For an emetic.

109. Sulphate of Zinc, one scruple; Water, and Cinnamon Water, of each half an ounce. Mix. For an emetic.

110. Sulphate of Copper, ten or fifteen grains; Water, and Cinnamon Water, of each half an ounce. Mix. For an emetic.

110*a*. Tobacco, one ounce, shredded; Boiling Water, sufficient to macerate it. Apply to the pit of the stomach to cause vomiting: remove it as soon as sickness takes place.

SALINE MIXTURE.

111. Solution of Acetate of Ammonia, one ounce and a half; Sweet Spirit of Nitre, two drachms; Syrup, two drachms; Camphor Mixture, four ounces. Mix. A fourth part every four or six hours.

SALINE MIXTURE WITH COLCHICUM.

111*a*. Add one drachm of Colchicum Wine to the above.

112. Citric Acid, one drachm; Bicarbonate of Potash, four scruples; Nitre, two scruples; Cinnamon Water, two ounces; Water, four ounces. Mix. Take a fourth part every four or six hours. To either of the above may be added one drachm of Antimonial Wine, or half a drachm of Ipecacuanha Wine.

113. Solution of Acetate of Ammonia, three drachms; Antimonial Wine, Sweet Spirit of Nitre, of each half a drachm; Camphorated Tincture of Opium, one drachm; Water, sufficient to make two ounces. Mix. For an anodyne sudorific draught.

GOUT CORDIAL.

114. Two ounces of dried Orange-peel; one ounce of powdered Rhubarb; two ounces of powdered Aloes with Canella; steep them in a quart of Brandy for a week, strain off the liquor, take a table-spoonful with two of Water night and morning (Graves).

115. Rhubarb powdered, five grains; Magnesia, ten grains; Compound Cinnamon Powder, five grains. Mix. To be taken in a glass of water every day at noon.

116. Tincture of Rhubarb, one ounce and a half; Infusion of Orange-peel or Gentian, four ounces and a half; Bicarbonate of Potash, one drachm. Mix. Take a fourth part every day at noon (Halford).

CREASOTE MIXTURE.

117. Creasote and Vinegar, of each eight minims; Compound Spirit Juniper, half an ounce; Syrup of Ginger, half an ounce; Mucilage of Gum Arabic, three drachms; Water, enough to make eight ounces. Dose, two or three table-spoonfuls. In obstinate vomiting.

118. Infusion of Gentian, five ounces and a half; Sesquicarbonate of

Ammonia, half a drachm; Compound Tincture of Cardamoms, half an ounce. Mix. Two table-spoonfuls for a dose, twice or thrice a day.

119. Infusion of Chiretta, five ounces and half; Sal-volatile, one or two drachms; Compound Tincture of Cardamoms, three drachms. Mix. Two table-spoonfuls for a dose.

120. Trisnitrate of Bismuth, ten grains; Mucilage of Gum, Syrup, o each half a drachm; Tincture of Hop, Tincture of Cinnamon, of each half a drachm to one drachm; Water, one ounce. Mix for a draught, to be taken twice or thrice daily for pain and weakness of stomach.

Bark Mixture.

121. Decoction of Bark, six ounces; Sulphate of Quina, eight grains; Dilute Sulphuric Acid, half a drachm; Compound Tincture of Bark, half an ounce; Syrup of Orange-peel, two drachms. Mix. Take a fourth part three times a day.

122. Tincture of Calumba, from six to twelve drachms; Compound Tincture of Cardamoms, three drachms; Infusion of Cascarilla, sufficient to make six ounces. Mix. A fourth part every six hours, or three times a day. In some cases, a scruple of the Sesquicarbonate ol Ammonia may be beneficially added.

123. Tincture of Orange-peel, four drachms; Tincture of Cardamoms, two drachms; Bicarbonate of Soda, two scruples; Infusion of Calumba, sufficient to make six ounces. Mix. Take a fourth part three times a day.

124. Infusion of Calumba or Cascarilla, five ounces and a half; Compound Tincture of Cardamoms, half an ounce; Dilute Nitric Acid, one drachm and a half. Mix. Take two table-spoonfuls three times a day.

Bark and Acid Mixture.

125. Decoction of Bark, seven ounces; Compound Tincture of Bark, six drachms; Syrup of Orange-peel, two drachms; Dilute Sulphuric Acid, one drachm. Mix. A sixth part three times a day.

Quinine Mixture.

125*a*. Disulphate of Quina, six grains; Dilute Sulphuric Acid, twelve drops; Tincture of Orange-peel, four drachms; Syrup, three drachms; Compound Tincture of Cardamoms, two drachms; Water, sufficient to make six ounces. Mix. Dose, two table-spoonfuls. The portion of quina may be increased.

126. Nitric Acid diluted, two, three, or four drachms; Syrup of Orange-peel, two drachms; Distilled Water, one pint. Mix. A fourth part to be taken three times a day.

127. Nitric Acid diluted, Muriatic Acid diluted, of each two drachms; Syrup of Orange-peel, Tincture of Orange-peel, of each two drachms;

Water, sufficient to make one pint. Mix. In cases accompanied by much nervous irritation, one or two drachms of Tincture of Henbane may be added to either mixture.

Compound Steel Mixture.

128. Powdered Gum Myrrh, two drachms; Carbonate of Potash, one drachm; Rose Water, or Distilled Water, eighteen ounces; Powdered Sulphate of Iron, two scruples and a half; Spirit of Nutmeg, one ounce; Sugar, two drachms. Rub the Myrrh with the Spirit of Nutmeg, Carbonate of Potash, Sugar, and a portion of the Water, well together, dissolve the Sulphate of Iron in the remaining Water, and mix the two together in a well-corked bottle. Dose, from one to four table-spoonfuls. A highly esteemed stimulating tonic.

129. Tincture of Muriate of Iron, two drachms; Infusion of Chiretta, five ounces and a half; Compound Tincture of Cardamoms, two drachms. Mix. One ounce to be taken three times a day.

129*a*. Ammonio-citrate of Iron, one scruple to half a drachm; Syrup of Orange-peel, three drachms; Cinnamon Water, two ounces; Water, enough to make six ounces. Mix. One ounce to be taken three times a day.

129*b*. The same as the above, the Citrate of Iron with Quina being substituted for the Ammonio-citrate.

130. The Compound Steel Mixture No. 128, one ounce; Tincture of Henbane, eighty minims; Tincture of Squill, eighty minims; Almond Emulsion, sufficient to make six ounces. A fourth part to be taken three times a day for chronic bronchitis (Graves).

131. Iodide of Iron, half a drachm; Extract of Bark, one drachm and a half. Mix. Divide into twenty-four pills. Take two twice a day.

131*a*. Nitrate of Silver, half a grain; Compound Extract of Colocynth two or three grains. Mix for a pill, to be taken every night or twice a day in headache attended with obstinate constipation, and in hysterical headache (Graves).

Opiate Liniment.

132. Soap Liniment, Compound Camphor Liniment, of each six drachms; Laudanum, four drachms. Mix.

Aconite Liniment. (*Sedative*).

133. Extract of Aconite, one scruple; Soap Liniment, Compound Camphor Liniment, of each one ounce. Mix for a liniment, for rheumatism or neuralgic pains.

Liniment with Colchicum. (*Sedative*).

134. Soap Liniment, one ounce; Compound Camphor Liniment, Tincture of Colchicum, of each half an ounce. Mix. For gouty and rheumatic swellings: to be applied twice a day.

STIMULANT EMBROCATION (*as Roches*).

135. Oil of Amber, Oil of Cloves, of each half an ounce; Oil of Olives, one ounce. Mix for an embrocation.

136. Compound Camphor Liniment, Soap Liniment, of each six drachms; Tincture of Cantharides, half an ounce. Mix. A stimulating liniment for chilblains.

CROTON-OIL LINIMENT.

136*a*. Croton Oil, one drachm; Camphor Liniment, from one to two ounces. Mix for a liniment.

NITRO-MURIATIC ACID LINIMENT.

137. Nitro-Muriatic Acid, one drachm; Prepared Lard, one ounce. *Mix well* with an ivory or wooden spatula; then add Oil of Turpentine, two drachms. Mix. As the ingredients soon separate, it should only be made at the time required. As a rubefacient in bronchitis (Graves).

SULPHURIC ACID LINIMENT.

138. Olive Oil, or Linseed Oil, half an ounce; Oil of Turpentine, one drachm and a half; add gradually Sulphuric Acid, half a drachm. Mix.

139. Solution of Acetate of Ammonia (Mindererus' Spirit), four ounces; Spirit of Wine, one ounce; Elder Flower Water, or Rose Water, three ounces. Mix for a refrigerating lotion in bruises.

140. Hydrochlorate of Ammonia (Muriate of Ammonia), half an ounce; Spirit of Wine, half an ounce; Water, nine ounces and a half. Mix for a lotion for chronic swellings.

141. Carbonate of Soda, one drachm; Hydrocyanic Acid, one drachm; Distilled Water, eight ounces. Mix for a lotion for extreme itching.

GOULARD OR LEAD LOTION.

142. Diacetate of Lead (Goulard's Extract), Spirit of Wine, of each two drachms: Water, sufficient to make one pint. Mix for a cooling lotion in bruises.

OINTMENT OF COLCHICUM.

143. Acetous Extract of Colchicum, one scruple; Prepared Lard, half an ounce. Mix. Stimulant in rheumatism.

ACETATE OF ZINC LOTION.

144. Sulphate of Zinc, two grains; Dilute Liquor of Acetate of Lead (Goulard Water, 142), one ounce. Mix (Cooper).

DISCUTIENT LOTION.

145. Solution of Acetate of Ammonia, two ounces; Liquor of Acetate of Lead (Goulard's Extract), half a drachm; Water, sufficient to make half a pint. Mix for a lotion. Where it is applied to a painful

or irritable surface, two drachms of Laudanum will be a useful addition.

BLACK WASH.

146. Calomel, one drachm; Lime Water, six ounces. Mix for a lotion.

FRIGORIFIC MIXTURE.

147. Common Salt, Nitrate of Potash (Nitre), Sal Ammoniac (Muriate of Ammonia), of each two ounces. Mix. Dissolve in water. Useful when intense cold is required (Gay).

SULPHATE OF ZINC LOTION.

148. Sulphate of Zinc, half a drachm; Cold Water (that has been boiled), one pint. Mix.

SPIRIT LOTION.

149. Spirit of Wine, two ounces and a half, or a quarter of a pint of Brandy; Cold Water (that has been boiled), one pint. Mix (South).

ST. JOHN LONG'S LINIMENT.

150. Spirit of Turpentine, three ounces and a half; Rose Water, three ounces; the Yolk of an Egg; Strong Acetic Acid, six drachms; Oil of Lemon, ten minims. Rub the turpentine with the yolk of the egg, then add the other ingredients for a liniment, to be applied in the following manner: The bottle must be well shaken, and a table-spoonful poured into a saucer; this is to be taken up in a sponge about the size of a small apple, previously dipped in hot water and squeezed dry; with this the nape of the neck is to be diligently patted, not rubbed, for five minutes or longer, night and morning; and when the skin gets irritated and sore, it may be applied between the shoulders for a few days (Graves).

DILUTED CITRINE OINTMENT.

151. Ointment of Nitrate of Mercury, one part; Ointment of Spermaceti, or Prepared Lard, two parts. Mix.

APERIENT ENEMA.

152. Common Table Salt, Salad Oil, of each two tablespoonfuls; Thin Gruel, Barley Water, or Warm Water, one pint. Mix. Where a stronger enema is required, Senna Tea may be substituted for the water; or half a drachm of the Compound Extract of Colocynth dissolved in the water.

DOMESTIC GARGLE.

153. Honey, one table-spoonful; Vinegar, two table-spoonfuls; Sage Tea, or Water, enough to make half a pint.

154. Compound Infusion of Roses, half a pint; Dilute Muriatic Acid half a drachm. Mix for a gargle.

MERCURIAL LOTION.

155. Corrosive Sublimate, two grains; Hydrochlorate of Ammonia, (Muriate of Ammonia) two grains; Rose Water and Almond Mixture, of each four ounces. For blotches on the face.

CERATE FOR CHAPS.

156. Olive Oil, one ounce; Yellow Bees'-wax, half a drachm. Melt the wax with a gentle heat in a water bath, and then stir in New Honey, one drachm; White Flowers of Zinc, half a drachm: keep stirring till cold. After the hands are washed and well dried, a portion of the cerate should be well rubbed in with the hand, afterwards wiping all the grease off with a silk handkerchief.

ALKALINE CERATE.

157. Olive Oil, one ounce; White Wax, one drachm. Melt gently together, and stir in Bicarbonate of Potash, one drachm.

ZINC CERATE.

158. Add to one ounce of the above, one drachm of finely powdered Sulphate of Zinc. Mix.

ALKALINE LOTION.

159. Solution of Potash, two drachms; Hydrocyanic Acid diluted, one drachm; Almond Mixture, half a pint. Mix for a lotion in dandruff or branny tetter.

CREASOTE LOTION.

160. Creasote, one drachm; Vinegar or Glycerine, two drachms; Rose Water, half a pint.

SULPHURET OF POTASH LOTION.

161. Sulphuret of Potash, half an ounce; Water, a Pint. Mix.

CAMPHOR MIXTURE.

162. Camphor, half a drachm; Spirit of Wine, ten drops; Sugar, one drachm. Rub the Camphor with the spirit, and then the sugar; lastly, add gradually one pint of Distilled Water. If one drachm of Magnesia is mixed with the Camphor, Spirit, and Sugar, it renders the Camphor more soluble,

COMPOUND INFUSION OF SENNA.

163. Senna Leaves, half an ounce; Ginger, bruised, half a drachm; Boiling Water, half a pint. Infuse for one hour in a covered vessel, and strain. To preserve it, add ten grains of Nitre to the strained liquor.

INFUSION OF ROSES.

164. Dried Red Rose Leaves, three drachms; Dilute Sulphuric Acid

one drachm and a half; Sugar, six drachms; Boiling Water, one pint. Infuse the rose leaves in the water in a covered earthen vessel for two hours, add the sugar and acid, and strain.

BREAD AND WATER POULTICE.

165. Scald out a basin, then put into it a sufficient quantity of bread, crumb; cover it with boiling water; place a plate over it; when the bread has soaked up as much water as it can, drain off the remaining water. The poultice is fit for use. Spread it half an inch thick on folded linen, and apply it while it is of an agreeably warm temperature.

LINSEED MEAL POULTICE.

166. Scald out a basin; pour into it some boiling Water, to which add Linseed Meal, stirring it round with a stick till it forms a poultice of sufficient consistence, and well beaten up; then spread it half an inch thick on folded linen; smear some lard over it with a knife, so as to form a warm greasy poultice.

MUSTARD POULTICE.

167. Take equal parts (a table-spoonful) of Flour of Mustard and finely crumbed Bread or Linseed Meal; mix them in a warm basin, stir in gradually as much hot Water as will make it of a proper consistence; or what answers better, and is made quicker, is simply to mix the flour of mustard with warm water, spread it on linen, cover it with a piece of muslin, and place it next the skin. The poultice may be made more stimulating by adding some scrapings of horse-radish. Common mustard made for the table answers very well in cases of emergency. "Mustard poultices produce inflammation in from fifteen to twenty minutes after they are applied; the length of time they should be left on may be regulated by the feelings of the patient; but if he be insensible, they should be removed as soon as the skin is reddened" (Neligan). When used to a child, the poultice should be removed a few minutes after the skin reddens.

YEAST OR FERMENTING POULTICE.

168. Beer Yeast, and hot Water, of each a quarter of a pint; Oatmeal, or Linseed Meal, a pound. Mix them gradually by stirring with a spoon or stick before the fire (or while being warmed on the fire), then spread on linen, and apply next the skin: it should be renewed every six or eight hours.

CHARCOAL POULTICE.

169. Common Bread and Water Poultice, while hot, four table-spoonfuls; Linseed Meal, and well-dried Charcoal in fine powder, of each two table-spoonfuls; mix well together by stirring, then spread on linen. Apply the poultice next the wound. For gangrenous and fœtid sores.

SALT AND WATER POULTICE.

170. A table-spoonful of Salt should be dissolved in the Water with which bread poultice is made. "Useful in chronic abscess" (Cooper).

ANODYNE OR OPIATE ENEMA (LAVEMENT).

171. Jelly of Starch, three ounces; Laudanum, one drachm. Mix. To be administered slowly in obstinate diarrhœa.

TURPENTINE ENEMA.

172. Oil of Turpentine, one ounce; the Yolk of an Egg. Rub the turpentine with the yolk of the egg: add gradually one pint of warm Barley Gruel. In obstinate costiveness one ounce of Castor Oil may be added.

ANTISPASMODIC OR RUE ENEMA.

173. Confection of Rue, from two to four drachms; thin Gruel, from half a pint to a pint. Mix. For an enema in flatulent distension of the bowels. When it is required to act as an aperient, one ounce of Olive Oil may be added.

TABLE OF THE DOSES OF MEDICINE.

Medicine.	Dose for an Adult.	Dose for Children from 1 to 4 years old.	Form or Vehicle to be taken in.
Acid, Citric	10 to 30 gr.	2 to 5 grains	In Water, with Potash or Soda.
„ Gallic	3 to 10 gr.		Water with Mucilage.
„ Hydrocyanic, diluted	5 minims gradually increased to 10.	2 to 5 minims	In Almond Mixture.
„ Muriatic	5 to 20 min.	1 to 2 „	In Water.
„ „ diluted ...	20 to 60 min.	3 to 6 „	Ditto.
„ Nitric, diluted	10 to 40 min.	2 to 4 „	In Water, with Syrup.
„ Nitro-muriatic	5 to 10 min.	1 to 2 „	Ditto.
„ Sulphuric, diluted ...	10 to 40 min.	2 to 5 „	Ditto.
„ Tartaric	10 to 30 gr.	2 to 4 grains	In Water.
Aloes	As a purgative 5 to 15 gr. As an emmenagogue, 1 or 2 gr. twice a-day.	1 to 2 grains in a powder	In a Pill for Adults; or in Water or Milk.
Alum	10 to 20 gr.	1 to 2 grains	In Water.
Ammonia carbonate	10 to 20 gr.	1 to 2 „	Ditto.
Ammonia, muriate of ...	10 to 30 gr.		Ditto.
Antimonial Powder	3 to 8 gr.	1 to 3 „	Sugar or Conserve.
Antimony Tartarised (tartar emetic)	1 to 3 gr. as an emetic.	¼ grain	In Water.
	¼ to ½ gr. as a diaphoretic.		Ditto.
Antimonial Wine	15 to 30 min.	2 to 5 minims	Saline Mixture.
Arrow-root			
Aromatic Confection ...	1 scr. to 1 dr.	3 to 10 grains	In Water.
Assafœtida...	10 gr. to ½ dr.	2 to 5 „	In Water or in Pill.
Balsam of Copaiba	1 scr. to 1 dr.		On Water.
„ of Peru...	5 gr. to ½ dr.		In Water, with Syrup or Mucilage.
„ of Tolu...	10 gr. to ½ dr.		In Pills.

Medicine.	Dose for an Adult.	Dose for Children from 1 to 5 years old.	Form or Vehicle to be taken in.
Balsam, Friar's...............	½ dr. to 2 dr.		In Water with Mucilage.
Bark, Augustura, Powder..	10 to 30 gr.		
„ Canella Alba, Powder	10 to 30 gr.	2 to 4 grains	In Water.
„ Cascarilla, Infusion...	1½ ounce.	1 to 2 drachms	In Infusion.
„ Cusparia, Infusion...	1½ ounce.	2 to 3 „	In Infusion.
„ Jesuits' (Cinchona)...	10 gr. to 1½ dr.	2 to 10 grain	In Water, Milk, or Wine and Water.
„ Oak, Decoction ...	1 to 2 ounces	1 to 2 drachms	In Decoction.
„ Peruvian...............	10 gr. to 1½ dr.	2 to 10 grains	In Water, Milk or Wine.
„ Pomegranate, Powder	1 scr. to ½ dr.		
„ „ Decoction	½ oz. to 1 oz.	1 to 2 drachms	In Decoction.
Belladonna	⅛ of a grain to 2 gr. in extract		In Pill or Water.
Bismuth, Trisnitrate	5 to 20 grains	1 to 3 grains	In Water with Mucilage.
Blue Pill (Mercurial)	2 to 5 „		In Pill.
Blue Stone	¼ to 2 „		In a Pill.
Borax	10 to 30 „		In Water.
Broom Tops & Seeds, powder	1 scr. to 1 dr.		Ditto.
„ „ decoction	2 ounces	1 to 2 drachms	In Decoction.
Brandish's Alkaline Solution	½ dr. to 2 dr.	10 to 20 min.	In Milk, Veal-broth, or Beer.
Buchu (the leaves), Infusion	1 to 2 ounces		In Infusion.
Cabbage-tree Bark, Powder	10 to 30 gr.	2 to 5 grains	In Milk.
„ „ Infusion	1 ounce	2 drachms	In Infusion.
Cajeput Oil	1 to 5 minims		
Calomel	As a purgative 2 to 10 grains	1, 2, or 3 gr.	On a lump of Sugar, or Mucilage and Water.
	As an alterative ½ to 1 gr.	¼ gr. to ½ gr.	In Sugar or Jelly.
Calumba-root, Infusion ...	1½ ounce	2 to 4 dr.	In Infusion.
„ Powder ...	15 to 30 gr.	2 to 5 grains	In Water.
Camphor	5 to 20 grains		In a Pill.
Castor, Powder..............	10 to 20 „		Ditto.
„ Tincture	½ dr. to 2 dr.	6 to 15 min.	In Water.
Castor Oil	½ oz. to 1 oz.	1 to 2 dr.	In Milk or Water.
Catechu, Infusion	1 to 3 ounces	1 to 3 dr.	In Infusion.
„ Tincture	1 to 2 dr.	10 to 15 min.	In Chalk Mixture.
Chalk, Prepared	½ dr. to 2 dr.	8 to 10 gr.	In Water.
Chamomile-flowers, Infusion	½ oz. to 2 oz.	1 to 2 dr.	In Infusion.
„ Powder	10 to 30 gr.		In Water.
Chiretta, Infusion	1 to 2 ounces		In Infusion.
Colchicum, Extract	½ gr. to 2 gr.		In Pill.
„ Tincture or Wine	20 to 30 min.	3 to 5 min.	In Saline Mixture or Water.

Medicine.	Dose for an Adult.	Dose for Children from 1 to 5 years old.	Form of Vehicle, to be taken in.
Colocynth, Compound Ext.	5 to 30 gr.	1 to 4 grains	In Pill.
Corsican Moss			
Cowhage, or Cowitch ...	10 to 12 gr.		In Treacle or Honey.
Creasote	1 to 5 min.		With Vinegar and Water.
Croton Oil	1, 2, or 3 drops		In Pill.
Cubebs, Powder	1 to 3 dr.		In Honey or Milk.
Dandelion, Extract	10 to 30 gr.		In Water.
,, Decoction ...	4 to 8 ounces		
Digitalis, Infusion	2 to 4 dr.		
,, Powder	½ gr. to 1 gr.		In Pill.
,, Tincture	10 to 20 min.	2 to 4 min.	In Saline Mixture.
Dover's Powder	5, 10, or 15 gr.	1 to 2 grains	In Water.
Epsom Salts	2 dr. to 1 oz.	10 gr. to 1 scr.	Ditto.
Ergot of Rye, Powder ...	1 scr. to ½ dr.		In Water or Coffee.
Ether, Sulphuric	½ dr. to 1 dr.		In Water or Camphor Mixture.
,, Nitric	½ dr. to 1 dr.		Ditto.
Male Fern, Powder	1 to 3 dr.		
Galls (Gall-nuts), Infusion	½ oz. to 1 oz.		
,, ,, Tincture	½ dr. to 2 dr.		
Galbanum	5 to 10 grains		Pill.
Gamboge, (Compound pill)	5 to 10 ,,		Ditto.
Gentian, Infusion	1 to 2 ounces	2 drachms	In Water.
,, Tincture	1 to 2 drachms	10 to 15 min.	Ditto.
Glauber's Salts	2 to 10 dr.	1 to 2 dr.	Ditto.
Guaiacum, Tincture	1 to 3 dr.	10 to 15 min.	Ditto.
,, ,, Compd.	½ dr. to 1 dr.	10 to 15 min.	Ditto.
Gum Arabic	½ dr. to 2 dr.	½ dr. to 1 dr.	Ditto.
,, Ammoniac	10 to 30 gr.		Ditto.
Hemlock, Extract	2 to 10 gr.	½ gr. to 2 gr.	Ditto.
,, Tincture	20 to 60 min.	4 to 10 min.	Ditto.
Henbane, Extract	2 to 10 gr.	½ gr. to 2 gr.	Ditto.
,, Tincture	20 to 60 min.	2 to 10 min.	Ditto.
Hiera Picra	10 to 30 gr.		In Wine and Water.
Hops, Extract	10 to 20 gr.		In Pill.
,, Infusion...	½ oz. to 2 oz.	1 drachm	In Infusion.
,, Tincture	½ dr. to 1 dr.	5 to 8 min.	In Water.
Iceland Moss			
Iodide of Potassium ...	5 to 15 gr.	1 to 2 grains	In Water.
Ipecacuanha Powder ...	Emetic, 5 to 30 gr.	4 to 8 ,,	Ditto.
	Diaphoretic, ½ gr. to 2 gr.	¼ to ½ grain	Ditto.

Medicine.	Dose for an Adult.	Dose for Children from 1 to 5 years old.	Form of Vehicle, to be taken in.
Ipecacuanha Wine	Emetic, 2 to 4 drachms	10 to 20 min.	In Water.
	Diaphoretic, 4 to 10 min.	3 to 5 min.	Ditto.
Iron (Filings)	5 to 10 gr.		In Honey.
Iron or Steel Wine	1 to 4 dr.	2 min. to 1 dr.	In Water.
Ammonio-tartrate of Iron	5 to 10 grains	1 to 5 grains	Ditto.
,, citrate of Iron	5 to 10 ,,	1 to 5 ,,	Ditto.
,, ,, ,, with Quinine	5 to 10 ,,	1 to 5 ,,	Ditto.
Iron, Carbonate of (Sesquioxide)	20 gr. to ½ oz.	5 to 20 ,,	In Honey or Conserve
,, Iodide of	2 to 5 grains		
,, Muriated Tincture of	10 min. to 1 dr.	2 to 5 min.	In Water.
,, Sulphate of	1 to 5 grains		Ditto.
,, Syrup of	15 min. to 1 dr.	10 to 30 min.	Ditto.
,, Tartarized	5 to 20 grains	2 to 5 ,,	In Honey or Water.
Jalap, Powder	10 to 30 gr.	2 to 10 grains	Ditto.
,, Compound Powder	½ dr. to 1½ dr.	6 to 12 ,,	Syrup.
Juniper, Compound Spirit of	2 to 4 dr.	10 to 20 min.	In Water.
Kino, Tincture	1 to 2 dr.	10 to 20 min.	
,, Powder	10 to 30 gr.	2 to 5 grains	Ditto.
Kousso	½ ounce		Ditto.
Lactucarium	5 to 20 grains	1 to 2 grains	In Pill or Water.
Lavender, Comp. Tincture	½ dr. to 2 dr.	5 to 10 min.	In Water.
Laudanum	10 min. to 1 dr.	1 to 3 min.	Ditto.
Lime-water	1 to 4 oz.	1 to 4 dr.	
Lobelia, Tincture	½ dr. to 1 dr.		In Camphor Mixture or Water.
,, ,, Ethereal	20 to 60 min.		Ditto.
,, ,, (Whitlaw)	5 to 20 min.		Ditto.
Logwood, Decoction	1 to 4 oz.	1 to 4 dr.	In Decoction.
,, Extract	10 to 30 gr.		In Pill.
Magnesia, Calcined, Antacid	10 to 15 gr.	2 to 5 grains	In Water.
,, ,, Aperient	1 to 3 scruples	5 to 15 ,,	Ditto.
,, Carbonate of, Antacid	15 to 30 gr.	3 to 6 ,,	Ditto.
,, ,, Aperient	1 to 2 dr.	10 to 20 ,,	Ditto.
Manna	1 to 2 oz.	1 to 3 dr.	In Milk.
Marsh Mallow			
Mastich			
Mercury with Chalk	3 to 10 grains	½ gr. to 3 gr.	In Conserve.
Matico, Infusion	1 to 2 oz.	1 to 2 dr.	In Infusion.
,, Powder	10 to 30 grs.		In Water.
,, Tincture	1 to 2 dr.		In Water.

Medicine.	Dose for an Adult.	Dose for Children from 1 to 5 years old.	Form or Vehicle to be taken in.
Mercury, Bichloride... ...	⅛ to ¼ grain		In Water.
Morphia, Acetate	¼ to ½ grain	1/20 to 1/10 gr.	Ditto.
„ Hydro-chlorate of	„ „	„ „ „	Ditto.
Mustard-seed			
Musk...	2 to 20 grains	¼ gr. to 1 gr.	Ditto.
Myrrh	10 to 30 „	1 to 6 grains	Ditto.
Nitre (as a Diuretic) ...	30 to 40 „	2 to 3 „	Ditto.
„ (as a Refrigerant) ...	10 to 20 „		
Oil of Almonds	1 to 4 dr.	½ dr. to 2 dr.	In Emulsion.
„ Olives	1 to 2 ounces	„ „ „	Ditto.
„ Cod-liver	½ to 1 „	1 to 2 dr.	In Raisin or Orange Wine.
Opium	½ gr. to 4 gr.	See Dover's Powder	
Paregoric Elixir (Compound Camphor Tincture)...	1 to 3 dr.	5 to 15 min.	In Water.
Pareira Brava, Decoction...	½ pint a-day		
Poppy, Extract...	2 to 20 grains	½ grain	In Pill.
„ Syrup	1 dr. to 1 oz.	½ dr. to 1 dr.	By itself or in Water.
Potash, Bicarbonate... ...	10 to 30 gr.	1 to 5 grains	In Water.
„ Chlorate	10 to 20 gr.	„ „	Ditto.
„ Solution of	10 to 60 min.	2 to 10 min.	In Milk.
Quassia, Infusion of... ...	1 to 1½ oz.	1 to 2 dr.	In Water.
Quinine	1 to 10 grains	¼ gr. to 1 gr.	In Water, with Acid.
Rhatany, Krameria, Extract	10 to 20 „		Ditto, or in Pill.
„ „ Infusion	1 to 2 ounces	1 to 2 dr.	In Infusion.
Rhubarb, Powder	1 to 2 scruples	2 to 8 grains	In Water.
„ Tincture	1 to 4 dr.	10 to 20 min.	Ditto.
Rue, Infusion	1 to 4 ounces		
Sarsaparilla, Decoction ...	½ to 1 pint daily	2 to 4 dr.	In Decoction.
„ Syrup	1 to 3 ounces	1 to 2 dr.	In Water.
Scammony, Comp. Powder	10 to 20 gr.	3 to 6 or 8 gr.	In Syrup and Water.
Senna, Infusion	2 to 4 ounces	2 to 4 dr.	In Infusion.
„ Tincture	1 to 4 dr.		
Senega, Infusion	2 to 3 ounces	2 to 4 dr.	In Infusion.
Serpentaria, Infusion ...	1 to 2 „	„ „	Ditto.
„ Tincture ...	1 to 3 dr.	10 to 20 min.	In Water.
Silver, Nitrate of	⅙ gr. to 3 gr.		In Pill.
„ Oxide of...	½ gr. to 1 gr.		Ditto.
Soap	5 to 10 grains		Ditto.
Soda, Bicarbonate of ...	10 to 30 „	3 to 5 grains	In Water.
„ Carbonate of	10 to 30 „	3 to 5 „	Ditto.
„ „ dried ...	5 to 20 „	2 to 4 „	Ditto, or in Pills.
Solution of Acetate of Ammonia	3 to 6 dr.	½ dr. to 1 dr.	In Water.
Spermaceti	½ dr. to 1 dr.	5 to 10 grains	In an emulsion.

Medicine.	Dose for an Adult.	Dose for Children from 1 to 5 years old.	Form or Vehicle to be taken in.
Spider's-web	5 to 10 grains		In a Pill.
Spirit of Nitric Ether ...	10 to 60 min.	5 to 10 min.	In Water.
Squill, the Bulb	5 to 15 grains		In Pill.
„ Oxymel of	½ dr. to 2 dr.	½ drachm	In Water.
„ Powder...	1 to 3 grs.	½ gr. to 1 gr.	In Syrup.
Stramonium, Extract ...	¼ gr. to 1 gr.		In Pill.
Strychnia	$\frac{1}{16}$ grain		Ditto.
Sugar of Lead	2 to 4 grains	¼ gr. to 1 gr.	Ditto.
Sulphur, Prepared	1 to 3 scruples	5 to 10 grains	In Honey or Treacle.
Tar			
Tin Powder	1 to 4 dr.		Ditto.
Tormentil Root, Decoction	1 to 1½ oz.	2 to 4 dr.	In Decoction.
„ Powder...	10 to 60 gr.	3 to 6 grains	In Water.
Turpentine, Spirit of ...	10 to 30 min. as a Diuretic		Ditto.
	1 to 4 dr. for tapeworm		Ditto.
Valerian Root, Tincture ...	2 to 4 dr.	5 to 10 min.	Ditto.
„ Comp. Tincture	1 to 2 dr.	2 to 5 „	Ditto.
Valerianate of Iron	½ gr. to 1 gr.		In Pill.
„ Quinine ...	1 to 2 grains		Ditto.
„ Zinc	½ gr. to 1 gr.		Ditto.
Worm-seed		10 to 20 gr.	In Treacle.
Wormwood, Infusion ...	½ oz. to 1 oz.	1 to 2 dr.	In Infusion.
„ Tincture ...	1 to 4 dr.		
Zinc, Oxide of	1 to 2 grains		In Pill.
„ Sulphate of, Emetic..	15 to 30 „		In Water.
„ „ Tonic ...	½ to 5 „		In Pill.

INDEX.

A.

ABDOMEN, regions of the, 28.
Abdominal cavity, 28.
Abdominal viscera,—the peritoneum, 35; the alimentary canal, 36; the stomach, ib.; the intestinal canal, the liver, &c. 37, et seq.
Abortion, 527. See Miscarriage.
Abrasion, 429; remedies for, 430.
Abscesses, causes and treatment of, 226.
Absorbent vessels of two kinds,—the lacteals, and lymphatics, 43, 44; absorbent medicines, 99.
Accidents, mode of removing persons injured by, 269.
Acetate of ammonia, solution of, 171.
Acetate of zinc lotion, 655.
Acetic acid, 112.
Acids, their properties and medical uses,—acetic, citric, and gallic, 112; hydrocyanic, and muriatic, 113; nitric, 114; nitro-muriatic, and sulphuric, 115; tartaric, 116.
Acidulous springs, 182.
Aconite, a vegetable poison, 560.
Aconite liniment, 654.
Acute rheumatism, 572.
Adipose tissue, 27.
Age, a predisposing cause of disease, 53.
Ague, varieties of,—the Quotidian, the Tertian, and the Quartan, 229; causes, 231; treatment, 233.
Air, moist, an exciting cause of disease, 56, 57.
—— pure, necessary for children, 220.
Aix-la-Chapelle, mineral waters of, 183.
Alcoholic poisoning, 559.
Albumen of the blood, 25.
Alimentary canal, 36.
Alkaline springs, 181; cerate, 657; lotion, ib.
Almonds, oil of, 158.
Aloes, a stomachic cathartic, 116; three different species of,—the Socotrine or Cape aloes, the common or Barbadoes aloes, and the Caballine or horse aloes, ib.; compound decoctions of, 643.
Alum, a tonic and astringent, 117.
Amaurosis, 236; causes, and treatment of, 237.
Amenorrhœa (suppression of the Menses), its treatment, 519—522. See Menstruation.
Ammonia, a mineral poison, 554; carbonate of, a powerful stimulant, 118; liquor of, ib.; muriate of, ib.
Ammonio-tartrate and citrate of iron, 146.
Amniotic fluid, 52.
ANATOMY of the human body, 3; the bones, 4; the muscles, 11; the bodily senses, 15; the organs of voice, 19; the nervous system, 20; central organs,—the brain, &c., 21, 22; self-nutrition, 23; the blood, 24; the general organisation, ib.; the tissues, 25; the cavities and regions, 28; the heart, 29; the lungs, 30; the blood-vessels, 31; the circulation and respiration, 33; the abdominal viscera, 35; the alimentary canal, 36; the pancreas, spleen, and liver, 38, 39; the kid-

neys, 40 ; process of digestion, 41 ; the absorbents, 43 ; sanguification, 44 ; secretion and excretion, 45 ; formation of the tissues, 49 ; animal heat, and life, 50 ; organs and functions of reproduction, 51.
Angina pectoris, symptoms, and treatment, 239.
Angustura bark, 124.
Animal heat, causes of, 50.
Animal poisons, 556.
Anodynes, soothing medicines, 109 ; list of, 110.
Anodyne mixture, 643.
Anodyne or opiate enema, lavement, 659.
Antacids, absorbents, and correctives of acidity in the stomach and bowels, 99 ; principal medicines of the class of, 100.
Anthelmintics, vermifuge medicines, list of, 100.
Antimonial powder, its uses, 119.
Antimonial wine, 119.
Antimony, a metallic poison, 555 ; its treatment, ib.
—— tartarized, its uses, 119.
Antispasmodic emmenagogues, 107.
Antispasmodic or rue enema, 659.
Antispasmodics, 100 ; list of, 101.
Aperients, saline anodyne, 643 ; with narcotic, 644 ; with sulphur, ib. ; mild pills, 645 ; sulphur powder, 649 ; aperient enema, 656.
Aphonia (loss of voice), causes of, 241.
Aphtha (the Thrush), treatment of, 242.
Apoplexy, causes of, and prevention, 244.
Apothecaries' weights and measures, 97, 98.
Appetite, want of, remedies for, 413.
Areolar tissue, 26.
Aromatic confection, 120.
Arrow-root powder, properties of, 120.
Arsenic, the white oxide of, its application as a medicine, 120, 121.
—— a metallic poison, 554 ; its treatment, ib.
Arteries, structure and functions of the, 31.
Articular cartilages of joints, 11.
Ascites, 398. See Dropsy.
Assafœtida, a powerful antispasmodic, 121 ; mixture of, 649.
Asses' milk, artificial, 121.
Asthma, 247 ; treatment of, 248.
Astringents, list of, 101, 102.
Atmosphere, moist, an exciting cause of disease, 56.
Atrophy (a wasting away), symptoms, and causes, 251.

B.

Balsams, their properties and medical uses,—balsam of Copaiva, 122 ; Friar's balsam, ib. ; balsam of Peru, 122 ; balsam of Tolu, ib.
Barbadoes aloes, 116.
Barèges, mineral waters of, 184.
Barks, their properties and medical uses,—Peruvian bark, 124 ; Angustura bark, 124 ; Canella bark, ib. ; Cascarilla bark, 125; Oak bark, 125; Pomegranate bark, ib.
Bark mixtures, 653.
Bath, mineral waters of, 184.
Bathing and baths, 91—95.
Beds, damp, a common cause of disease, 66.
Belladonna (the Deadly Nightshade), its properties and uses, 126.
Belly, dropsy of the, 398 ; treatment, 399.
Beulah, mineral waters of, 184.
Bile, properties of, 42.
Bilious complaints, 252 ; sick headache, 253 ; treatment, 254.
Bilious cholera, 255 ; treatment, 256.
Bilious fever, its treatment, 445.
Bilious temperament, a predisposing cause of disease, 55.
Bismuth, subnitrate of, 126.
Black wash, 656.
Bladder, structure and functions of the, 40.
—— Inflammation of the, 257; causes, and treatment, 258.
—— Mucous discharge from the, 259 ; its treatment, ib.

Bladder, irritable, treatment of, 260.
Bleeding from the nose, causes, and treatment, 261.
Blight in the eye, 435.
Blisters, use of, 108, 109
Blood, physiology of the, 24; its component parts, 25; circulation of the, 33, 74, 80; manufacture of, 44; pathology of the, 75; congestion of the, 81; inflammation of the, 82—85; vomiting of, 474; spitting of, 476.
Blood-vessels,—the arteries and veins, 31, 32.
Bloody flux, 401. See Dysentery.
Blue pill, its application, 126.
Blue stone, a strong irritant poison, 126.
Blush, inflammatory, 429.
Boils, 262; treatment of, 263.
Bones of the head, 4, 5; of the spinal column, 5; of the chest, the trunk, and the extremities, 7, 8; their general structure and formation, 10; the moveable joints, 11.
—— Fractured, 269, et seq. See Broken Bones.
Borax, its medical uses, 127.
Bowel fever of children, symptoms of, 445; its treatment, 447.
Bowels, state of the, an evidence of disease, 73.
—— inflammation of the, 263; causes, and treatment, 264.
Brachial plexus, 23.
Brain, the central organ of the nervous system, 21; its anatomy, 22.
—— inflammation of the (Phrenitis), 266; causes, and treatment, 266, 266.
—— concussion of the, 329.
Brandish's alkaline solution, promotes digestion, 127.
Bread and water poultice, 658.
Breast, cancer of the, 300.
Breasts, structure of the, 48.
Broken bones, 269; treatment of, 270, 278, 279, 281; Mr. South's method of treating, 272; a broken rib, 273; collar bone, or elbow, 274; fingers, or thigh, 275; knee-cap, 278; leg, 279; compound fractures, 281.
Bronchia, an important organ of the voice, 19.
Bronchitis, acute, 282; treatment, 283.
—— chronic, 284; treatment, 286.
Bronchocele, 287; causes, and treatment, 288.
Broom, the tops and seeds of, cathartic and diuretic, 128.
Bruises, 290; treatment of, 291.
—— jammed fingers, 291; treatment of, 292.
Bubo, causes of, and treatment, 297, 298. See Syphilis.
Buchu, the leaves of, a stimulating diuretic, 128; infusions of, 648.
Bunions, causes of, and treatment, 293.
Burgundy pitch, forms a mildly stimulating plaster, 128.
Burns, 293; treatment of, 294—296; results of, 297.
Bursæ mucosæ, 293, *note*.
Butter, often injurious to children, 211.
Buxton, mineral waters of, 184.

C.

Caballine aloes, 116.
Cabbage tree bark, an excellent vermifuge, 128.
Cajeput oil, a strong antispasmodic, 129.
Calomel (the Chloride of Mercury), its properties, and extensive application in medicine, 129.
Calomel pills, 645.
Calumba, the root, a valuable tonic, 129.
Camphor, its properties and uses, 139; compound tincture of, 162.
Camphor mixture, 657.
Cancer, a malignant growth of structure, 80; causes of, 298, 299.
Cancer of the breast, 300; of the womb, 302; of the testicle, ib.; of the scrotum, 303; of the lips and the tongue, ib.; general treatment of, 303—309; the usual recipes for, 305, 308.

Canella bark, 124.
Canine madness, 494. See Hydrophobia.
Cantharides, an animal poison, 556; treatment for, 557.
Carbonate of iron, a chalybeate tonic, 146.
Carbuncle, 309; its treatment, 310.
Cardialgia (Heartburn), causes, and treatment of, 483.
Carminative mixtures, for infants, 647.
Cartilage, a cellular tissue, 27.
Cascarilla bark, 125.
Castor, a substance secreted by the beaver, 131.
Castor oil, a mild purgative, 131.
Catalepsy, 310; its treatment, 311.
Cataract of the eye, 311; its characteristics, 435.
Catarrh, 324. See Cold.
Catechu, a valuable astringent, 131, 132.
Cathartics, medicines which accelerate evacuation, 102; list of, 102, 103.
Cauda equina, 23.
Caustics, escharotics, or burning substances, 103. See Nitrate of Silver, and Potash, 131.
Cavities into which the body is divided, 28.
Cellular tissues, 26.
Central organs of the nervous system, 21.
Cerates, for chaps, 657; alkaline, and zinc, ib.
Cerebro-spinal system, 20.
Cerebrum, and cerebellum, the central organs of the nervous system, 21.
Chalk, prepared, 132.
Chalk mixtures, 646, 647.
Chalybeate springs, 182.
Chamomile, flowers of, 132.
Chancres, their treatment, 616, 617. See Syphilis.
Chapped hands, treatment of, 312.
Chaps, cerate for, 657.
Charcoal poultice, 658.
Chelsea pensioner, the prescription, 646.
Cheltenham, mineral waters of, 184.
Chest, bones of the, 7; dropsy of the, 400; symptoms, and treatment, 401.
Chicken-pock, causes, and treatment of, 312.
Chilblains, treatment of, 313.
Child-crowing, a croup-like convulsion, 359; its treatment, 360.
CHILDREN, Diseases of, 193, et seq.; mortality of, 193; management of, 195; causes of disease in, 197; treatment of, during infancy, 199; unhealthiness of parents one great cause, 200; clothing of, 203; food for, 207; fruit, and butter, 211; exercise necessary for, 212; too early employment of, injurious, 218, 219; pure air necessary for, 220; importance of the nursery for, 221; wet-nurses for, 222; evils of drenching them with drugs, 224; importance of hygienic rules for preserving their health, 225; dangers arising from their swallowing foreign substances, 316.
—— low fever of, symptoms of, 445; its treatment, 447.
Chin-cough, 484. See Hooping-cough.
Chiretta, the herb, 133.
Chlorosis (Green Sickness), causes, and treatment of, 472.
Choking, from various circumstances, 314; remedies, 315; treatment, 317.
Cholera, bilious, 255; treatment of, 256.
Cholera morbus, — English cholera, 318; symptoms and causes, 319; its treatment, 320.
—— malignant, or Asiatic cholera, 321; symptoms, 321; causes, 322; prevention and treatment, 322, 323. See also Diarrhœa and Dysentery.
Chorion, the, 52.
Chronic rheumatism, 572.
Chyle, property and uses of, 44.
Chyme, formation of, 42.
Circulation of the blood, 33; state of the, an evidence of disease, 74. See Blood.
Citric acid, 112.
Citrine ointment, 651.
Cleanliness, want of, a cause of disease, 65.

Clifton, mineral waters of, 187.
Climate, an exciting cause of disease, 56, 57.
Clothes, damp, a common cause of disease, 66.
Clothing of children, 203.
—— faulty, conducive to disease, 65.
Cocculus Indicus, a vegetable poison, 560.
Cod-liver oil, preparation of, 158; its application, 159.
Colchicum (Meadow Saffron), the root, bulb, and seed of, 133; a vegetable poison, 560; ointment of, 655.
Cold, 323; symptoms of, 324; two kinds of,—the common catarrh, and the epidemic catarrh or influenza, 324; treatment of, 325; prevention of, 326; exposure to, 614.
—— treatment of, in cases of suspended animation, 614.
Cold-bath, the, 92.
Colic, 326; causes and treatment, 327.
—— Lead colic, symptoms and treatment, 328.
Collar-bone, broken, its treatment, 274.
Colocynth (Bitter Cucumber), the pulp of, 133.
Colocynth pills, 645.
Compound fractures, treatment of, 281.
Concussion of the brain, 329; its treatment, 330.
Congenital hernia, 583.
Congestion of the blood, 81.
Constipation, habitual, remedies for, 416.
Consumption, 331; symptoms of, 332; causes, 334; prevention, 336; Dr. Stewart's plan, 337; the climate most suitable for, 339; medicinal treatment of, 340; recipes for, 341.
Contagion, an exciting cause of disease, 55.
Contusions, 290. See Bruises.
Convulsions, 342; causes of, 343; their treatment, 344.
Cookery, rules for, 60.
Cooling, sudden, of the body, ill effect of, 67.
Copaiva, balsam of, 122.
Copper, sulphate of, 134.
—— a powerful poison, 555; its treatment, ib.
Corns, treatment of, 345.
Corrosive sublimate, 554. See Mercury.
Corsican moss, a vermifuge, 134.
Costiveness, 346; causes and treatment of, 347; recipes for, 348 349.
Cough, 323. See Cold.
Cough aperient pills, 648.
Cough mixtures, 648.
Cough syrups, 649.
Cowhage, a vermifuge, 134.
Cow-pox, Dr. Jenner's discovery respecting the, 350; applied to vaccination, 351.
Cramp, causes and treatment of, 356.
Creasote, its various uses, 135.
Creasote lotion, 657.
Creasote mixture, 652.
Cretinism, a species of idiotism accompanied by goître, 287, *note.*
Croton oil, an acrid cathartic, 135.
Croton oil liniment, 655.
Croton oil pills, 644.
Croton seeds, a vegetable poison, 554.
Croup, symptoms of, 355; causes ar treatment, 356—358.
—— spasmodic, 359; treatment, 360 recipes for, ib.
—— Diphtherite, 360; treatment 361.
Cubebs, their properties, 136.
Cuts, 634. See Wounds.

D.

Damp clothes, beds, and houses, a common cause of disease, 66.
Dandelion, root of the, a diuretic, 136.
Dandriff, 600. See Skin.
Deafness, causes of, 361; treatment of, 362, 363; various artificial contrivances for alleviating, 363, 364.
Decoctions of Pareira Brava, 648; of uva ursi, ib.
Deformity, or Distortion,—of the feet, 365; of the spine, ib.; of various kinds, 366, et seq.; symptoms and

causes of, 369 ; treatment of, 370—374.

Delirium tremens, symptoms and causes, 374; its treatment, 375, 376.

Dementia (Incoherence), 506. See Insanity.

Demulcents, 107.

Derbyshire neck, 287 ; causes, and treatment of, 288.

Diarrhœa, 380 ; causes, and treatment of, 381, 382.

Diabetes, 377 ; symptoms, causes, and treatment, 378, 379.

Diaphoretics, the promoters of perspiration, 103 ; list of, 104.

Digestion, the process of, 41, 42.

Digitalis, a sedative and diuretic, 137.

—— a vegetable poison, 560.

Dinner pills, useful prescriptions for, 642.

Diphtherite, 360. See Croup.

Discutient lotion, 655.

DISEASE, causes and signs of, 52, et seq. ; predisposing causes, 52 ; exciting causes, 55, et seq. ; pathological evidences to the diseased person, 71 ; and to the medical man, 72.

Diseases of children, 193, et seq. ; causes of, and treatment, 197, 199, et seq. ; arranged alphabetically, 226, et seq.

—— of the nervous system, 533.

DISLOCATION, 383 ; symptoms of, and treatment, 384.

—— of the lower jaw, its treatment, 384, 385.

—— of the shoulder, or of the arm, 385 ; symptoms, ib. ; mode of reduction, 386.

—— of the hip-joint, or thigh-bone, 387 ; mode of reduction, 388.

—— downwards, 389 ; mode of reduction, 389.

—— backwards and upwards, 389 ; mode of reduction, 390.

—— forward, 390 ; mode of reduction, ib.

Dislocation of the neck, and of the elbow, 391.

—— of the wrist, 391 ; mode of reduction, ib.

—— of the fingers and toes, 396.

—— of the thumb, 392.

Diuretics, the promoters of urinal secretions, 104 ; list of, 105.

Diuretics, tonic, astringent, and stimulating, 648.

Doses of medicine, alphabetical table, 661.

Douche bath, the, 94.

Dover's powder, a narcotic and diaphoretic, 137.

Drastics, violent purgatives, list of, 102, 103.

Draughts, useful prescriptions for, 641.

DROPSY, 392 ; causes of, 393 ; prognosis, and treatment of, 394, et seq. ; recipes for, 396, 399.

—— of the belly (Ascites), 398 ; causes, and treatment of, 398, 399.

—— ovarian, 399 ; symptoms of, ib. ; treatment, 400.

—— of the chest, and of the heart (Hydrothorax), 400 ; symptoms of, and treatment, 401.

—— of the brain, 493. See Hydrocephalus.

—— ovarian, characteristics of the, 539.

Drowning, treatment for, 608.

Dutch drops, the prescription, 646.

Dysentery (Bloody Flux), 401 ; symptoms of, 402 ; causes of, 404 ; treatment of, 406.

Dyspepsia (Indigestion), symptoms of, 408, 409, 413 ; causes of, and treatment, 410 ; distress of mind a frequent cause of, 413.

—— Palliative remedies for,—in the want of appetite, 413 ; in nausea and vomiting, 414 ; in flatulence and eructation, 415 ; in heart-burn and water-brash, ib. ; in habitual constipation, 416 ; a due attention to regimen and diet required, 417.

E.

Ear-ache, symptoms, and treatment of the, 418.
Earth-baths, 95.
Ecthyma, 599. See Skin.
Eczema, 598. See Skin.
Effervescing saline mixtures, 643.
Elbow, broken, treatment of the, 274.
—— dislocation of the, 391.
Embrocations, stimulant, 655.
Emetics, substances capable of exciting vomiting, 105; list of, 106.
Emmenagogues, medicines for promoting the menstrual discharge, 106; consist of four different orders,—the Stimulating, the Irritating, the Tonic, and the Antispasmodic, 106, 107; list of, 107.
Emollients, uses of, 107; list of, ib.
Employment, early, prejudicial to children, 218, 219.
Enemas, aperient, 656; anodyne, turpentine, and antispasmodic, 659.
Epidemic continued fever, 437; symptoms of, 438, 439; causes of, 440; its treatment, 441, et seq.
Epidemic catarrh, 503. See Influenza.
Epigastric region, 28.
Epiglottis, the, 19.
Epilepsy (Falling Sickness), symptoms of, 419; causes of, 421; treatment of, 422—425; recipes for, 424; regimen and diet to be strictly attended to, 425.
Epispastics, blistering applications, 108; list of, 109.
Epsom, mineral spring of, 187.
Epsom Salts (Sulphate of Magnesia), a cooling saline aperient, 137.
Ergot of rye, a stimulant to the womb, 138; a vegetable poison, 556.
Errhines, medicines for promoting the secretions of the nostrils, 109.
Eructation, remedies for, 414.
Eruptions, 597. See Skin.
Eruptive fever, 437.
Erysipelas (St. Anthony's Fire), symptoms of, 426; causes and treatment of, 427, 428.
Erysipelas, Phlegmonous, and Infantile, 429.
Erythema (Inflammatory Blush), a milder kind of erysipelas, 429.
Escharotics, 103. See Caustics.
Ether, sulphuric, its uses, 138.
Evidences of disease, 71, 72; the tongue, the gums, lips, bowels, vomiting, &c. 73, 74.
Exciting causes of disease, 55; contagion, ib.; infection and climate, 56; food, 57; want of exercise or rest, 63, 64; faulty clothing, and want of cleanliness, 65; damp clothes, beds, and houses, 66; bad habits of life, 67, 68; noxious trades and sedentary pursuits, 69, 70.
Excoriation, 429; remedies for, 430.
Excretion, process of, 45, 46; the organs of, 47.
Exercise, necessary to health, 63; necessary for children, 212; for girls, 217.
Expectorants, medicines which promote the secretions from the bronchial passages, 108; list of, ib.
Extremities, bones of the, 7—10.
Eye, injuries and disorders of the, 480; inflammation of the, 431; its causes and treatment, ib.
—— Chronic ophthalmia, 482; causes of the, ib.
—— Purulent ophthalmia, 432; its treatment, 433.
—— Strumous ophthalmia, 433.
—— Pustules in the, 434.
—— a sty, and blight in the, 435.
—— cataract, 311, 435.

F.

Face, bones of the, 5.
Fainting fits (Syncope), causes of, and remedies, 436.
Falling sickness, 419. See Epilepsy.
Feet, deformity of the, 365.
Fermented liquors, injurious to health, 61, 62.
Fern, male, an efficacious vermifuge, 139.

Fever, 436; divided into Intermittent, Remittent, Continued, and Eruptive, 437; causes of, 437, 440; treatment of different kinds of, 437, 441, 445, 447.
—— Simple continued, causes of, and treatment, 437.
—— Epidemic continued, 437; symptoms of, 438, 439; predisposing and exciting causes of, 440; treatment of, 441, et seq.
—— Remittent; Gastric; and Bilious; treatment of, 445.
—— Infantile Remittent (low fever of children), bowel, stomach, worm, or mesenteric fever; and marasmus, 445; symptoms of, ib.; causes of, and treatment, 447.
—— Milk, its treatment, 526.
—— Scarlet, its varieties, 584—588.
—— Yellow, symptoms of, 638; treatment of, 639.
Fibrin, tissues formed of, 26.
Fibro-cartilages of joints, 11.
Fibrous tissues, 26.
Fingers, broken, treatment of, 274.
—— jammed, 291; treatment of, 292.
—— dislocation of the, 391.
Fish-bones, choking from, 314; remedies for, 315.
Fish-hooks, wounds from, 638.
Fistula in ano, causes of, 448; its treatment, 449.
—— lachrymalis, causes of, 449.
Flatulence, remedies for, 414; causes of, 449.
Flooding, 518. See Menstruation.
Fluids, proper economy of, in the preservation of health, 61; pathology of the, 75; the blood, ib.; the urine, 76; the sweat, 77.
Fluor albus (Whites; Leucorrhœa), causes of, and treatment, 450.
ollicles, minute pits of the animal tissues, 27.
Food, process of digesting, 41, 42; for children, 207.
—— bad, an exciting cause of disease, 57—59; proper cooking necessary, 60.
Foul air, 612; treatment for suspended animation in cases of, 613.
Friar's balsam, 122.
Frigorific mixture, 656.
Fruit, unwholesome for children, 211.
Fuller's Spanish infusions, 650.

G.

Galbanum, its properties and uses, 139, 140.
Gall-bladder, the, 39.
Gallic acid, 112.
Galls, powerful vegetable astringents, 139.
Gall-stones, characteristics of, and remedies for, 510.
Gamboge, a drastic purgative, 140.
Ganglions, their structure and position, 20; important organs of the nervous system, 21, 22.
Gangrene, 85, 530. See Mortification.
Gargles, domestic, 656.
Garlic, a remedy in ascarides, 139.
Gastric fever, its treatment, 445.
Gastric juice, properties of the, 42.
Generation, organs of, 51.
Gentian (the root), an excellent tonic, 140.
Girls, exercise necessary for, 217.
Glauber's Salts, a saline aperient, 140.
Glottis, the, 19.
Glycerine, its application, 140.
Goats' milk, artificial, a nutritive article of diet, 140.
Goître, 287; associated with cretinism, ib.; causes and treatment, 288.
Gonorrhœa, symptoms of, 452, 453; treatment of, and recipes, 454, 455.
Goulard's extract, its use as a lotion, 141, 655.
Gout, 456; causes of, 458; prevention, 459; treatment of, and recipes for, 460—467; diet and regimen to be observed, 464, 465.
—— Retrocedent, symptoms of, and treatment, 466.
—— Atonic, treatment of, 467.
—— cordial, 652.

Gregory's powder, 644.
Gravel and Stone, symptoms of, 468; causes and treatment of, 469; state of the urine, 470.
—— Red gravel, treatment of, 470.
—— White gravel, 471; treatment of, 472,
Green Sickness (Chlorosis), symptoms of, 472; causes and treatment of, 473.
Guaiacum, its properties, 141.
Gum ammoniac, a mild stimulant, 141.
Gum Arabic, its application, 141.
Gum-boils, treatment of, 474.
Gum-resin, 168.
Gums, an evidence of disease, 73.
Gunpowder, wounds from, 636.

H.

Habits of life have a tendency to modify the state of health, 67—70.
Hæmatemesis (Vomiting of Blood), 474; causes and treatment of, 475.
Hæmoptysis (Spitting of Blood), a fearful disease, 476; its symptoms, causes, and treatment, 477.
Hæmorrhage, 85.
Hæmorrhoids, 545. See Piles.
Harrogate, mineral waters of, 187.
Hartfell, mineral spring of, 188.
Hartshorn Shavings, 142.
Head, bones of the, 4, 5; water in the, 488.
Head-ache, bilious, 253; treatment of, 254.
—— proceeds from a variety of causes, 478.
—— may be external or internal, 479.
—— External head-ache, its treatment, 479.
—— Internal head-ache, 479; its treatment, 480.
Hearing, sense of, 17.
Heart, anatomy of the, 29.
—— dropsy of the, 400; symptoms and treatment, 401.
—— diseases of the, divided into Nervous and Organic, 480.
Heart, nervous palpitation of the, 480, 481; its treatment, 482.
—— Organic diseases of the, 483.
Heart-burn (Cardialgia), remedies for, 415; causes and treatment of, 483.
Hellebore, a vegetable poison, 560.
Hemlock, a useful sedative, 142; a vegetable poison, 560.
Henbane, a narcotic poison, 142, 559.
Hereditary disposition, a predisposing cause of disease, 52.
Hernia, 580; symptoms and treatment of, 581, 582.
—— Congenital, treatment of, 583.
Herpes, 598. See Skin.
Hiccup, remedies for, 484.
Hicra picra, an aperient in certain cases, 142.
Hip-joint, dislocation of the, 387; mode of reducing it, 388; disease of the, 484.
Homburg, mineral waters of, 188.
Hooping Cough, 484; symptoms of, 485; treatment of, 486; recipes for, 487.
Hops, narcotic and tonic, 142.
Hot-air bath, the, 94.
Hot-bath, the, 92.
Hot-springs, 183.
Houses, damp, a common cause of disease, 66.
Human body, general review of the symptoms and causes of disease in the, 3; its anatomy and physiology, 3 et seq.; its general organisation, 23. See Anatomy.
Hydrocephalus (Water in the Head), divided into two kinds—acute and chronic, 488.
—— Acute hydrocephalus, 488; symptoms of, 489; its prevention, 491.
—— Chronic hydrocephalus, 493; its treatment, 494.
—— Spurious hydrocephalus, remedies for, 493.
Hydrocyanic acid, 113.
Hydrocyanic acid mixture, 649.
Hydrophobia (Canine Madness), 294; symptoms and treatment of, 495.

Hydrothorax (Dropsy of the Chest), 400; symptoms and treatment, 401.
Hygienic rules, importance of, 225.
Hypochondriac regions, 28.
Hypochondriasis (Vapours, — Low Spirits), 496; its treatment, 497.
Hypogastric region, 29.
Hysteria (Hysterics), 497; symptoms of, 498, 499; its treatment, 501; simulated diseases of, 502.

I.

Iceland moss, a bitter tonic, 143.
Iliacal region, 28.
Imperial drink, 646.
Impetigo, 599. See Skin.
Incubus (Night-mare), 539.
Indigestion, 408, 413. See Dyspepsia.
Infantile remittent fever, symptoms of, 445; its treatment, 447.
Infants, carminative mixture for, 647.
Infection, an exciting cause of disease, 56.
Inflammation of the blood, 82.
—— of the bowels, 263; causes and treatment, 264.
—— of the brain, 266; causes and treatment, 266, 267.
—— general or local, 503. See Fever and Abscess.
Inflammatory Blush, 429.
Influenza (Epidemic Catarrh), 503; symptoms and treatment of, 504.
Infusions of buchu, 648; of Fuller's Spanish, 650; of senna, 657; of roses, ib.
Inguinal region, 29.
Inoculation, 505. See Vaccination.
Insects, poisonous, 557.
Insanity, several varieties of,—moral, intellectual, raving, and incoherent, 506; causes of, ib.; their treatment, 507.
Intermittent fever, 229, 437; causes, 231; treatment, 233.
Intestinal canal, 37.
Iodide of iron, an excellent tonic in scrofulous debility, &c. 146.
Iodine, a special stimulant, 143.
Ipecacuanha, compound powder of, 137; a mild emetic and expectorant, 144.
Iron, preparations of, and their medical uses, 144—147; filings of, 145; wine of, 146; ammonio-tartrate, and ammonio-citrate of, ib.; carbonate of, ib.; iodide of, ib.; syrup of, 147; muriate, tincture of, ib.; sulphate of, ib.; tartarised, ib.
IRRITANTS, Non-metallic, — Mineral and oxalic acids, 553; ammonia, sal-volatile, and spirits of hartshorn, 554; their general treatment, 553, 554.
—— Metallic, — arsenic, mercury, lead, copper, antimony, and zinc, 554—556; their symptoms and general treatment, ib.
—— Vegetable,—savin, croton seeds, and ergot of rye, 556; treatment, ib.
—— Animal,—cantharides, poisonous food, venomous reptiles, &c. 556, 557; treatment, 557.
—— Narcotic,—opium, prussic acid, henbane, and alcohol, 557—559; symptoms and treatment, ib.
—— Narcotico-irritants, their distinguishing characteristics, 559; comprehend the cocculus indicus, digitalis, hellebore, hemlock, colchicum, aconite, deadly nightshade, nux vomica, and strychnia, 560; their general treatment, ib.
Irritating Emmenagogues, 106.
Itch, characteristics of, 507; its treatment, 507, 508.
Itching, 597. See Skin.

J.

Jalap, a stimulating cathartic, 148.
Jaundice, characteristics of, 508; causes of, ib.; its treatment, 509; gall-stones a chief cause of, 510.
Jaw, lower, dislocation of the, 384; treatment, 384, 385.
Jenner, Dr., the discoverer of vaccination, 350.

Joints, moveable, their various structures, 11.
Juniper, stimulating and diuretic, 148.

K.

Kidneys, structure and functions of the, 40; diseases of the, 511; symptoms of, and treatment, 511.
King's Evil, 588. See Scrofula.
Kino, tonic and astringent, 148.
Kissingen, mineral waters of, 189.
Knee-cap, broken, treatment of, 274.
Kousso, a remedy for tape-worm, 148.

L.

Lacteals, structure and functions of the, 43.
Lactucarium (lettuce opium), a mild anodyne, 149.
Laryngitis, symptoms of, and treatment, 512.
Larynx, an important organ of the voice, 19; chronic inflammation of the, 513.
Laudanum, a valuable narcotic, 149.
Lavement, anodyne or opiate enema, 659.
Lavender, compound tincture of, 149.
Laxatives, list of, 102, 103.
Lead, a powerful poison, 554; its treatment, ib.
Lead colic, symptoms and treatment, 328.
Lead lotion, 655.
Leamington, mineral waters of, 189.
Leeches, application of, 150.
Leg, broken, treatment of a, 279.
Leprosy, characteristics of, 513; treatment of, 514.
Leucorrhœa (Whites), causes of, and treatment, 450.
Lichen, 597. See Skin.
Life, physiology of, 50.
Ligaments of joints, 11; of the bones, 26.
Lime water, a useful antacid in dyspepsia, 151.
Liniments, opiate, 654; aconite, ib.; with colchicum, ib.; stimulant embrocation, 655; croton oil, nitromuriatic, and sulphuric acid, ib.; St. John Long's, 656.
Linseed, a useful demulcent, 151.
Linseed meal poultice, 658.
Lips, an evidence of disease, 73; scirrhus of the, 303.
Liver, structure and functions of the, 39.
—— diseases of the, 514; their causes and treatment, 515.
—— chronic inflammation of the, 516; its treatment, ib.
Lobelia, a valuable sedative expectorant, 152.
Logwood, a tonic astringent, 152.
Looseness, 381. See Diarrhœa.
Lotions, Goulard, acetate of zinc, and discutient, 655; sulphate of zinc, and spirit, 656; mercurial, alkaline, creosote, and sulphuret of potash, 657.
Low spirits, 496. See Hypochondriasis.
Lumbago, treatment of, 577.
Lungs, the chief organs of the voice, 19; anatomy of the, 30.
Luxation, 384. See Dislocation.
Lymphatics, structure and functions of the, 44.

M.

Madness, 506. See Insanity.
Magnesia, sulphate of, 127, 153; carbonate of, 152.
—— calcined, antacid and purgative, 152.
—— variously prescribed, 641 et seq.
Male organs of generation, 51.
Malignant growths of structure, 80.
Mammary gland for secreting milk, 48.
Mania, 506. See Insanity.
Manna, a mild laxative, 153.
Marasmus, symptoms of, 444; its treatment, 447.
Marsh mallow, an emollient, 153.
Mastich, applied to carious teeth, 153.
Materia Medica, that branch which

treats of the nature of medicines, and their application in the cure of diseases, 99; alphabetical list of medicines, 99—179.
Matico, a styptic astringent, 153.
Matlock, mineral waters of, 190.
Mattery pimples, 599. See Skin.
Meadow Saffron, 133.
Measles, a contagious eruptive disease, 516; symptoms, ib.; treatment of, 517.
—— Malignant, symptoms and treatment of, 518.
Measures of Apothecaries, 97, 98.
Medicated baths, 95.
Medicines, articles necessary for the preparation of, 98; table of doses, 660.
Medulla oblongata, 21, 22.
Melancholic temperament, a predisposing cause of disease, 55.
Menstruation, irregularities of, 518.
—— suppression of (Amenorrhœa), 519.
—— acute, sudden, and chronic, with the respective methods of treatment, 519—521.
—— Profuse discharge of whites, its treatment, 522.
—— Painful menstruation, its treatment, 523.
—— Profuse menstruation, symptoms, causes, and treatment of, 524.
—— Cessation of, symptoms and management, 525.
Mercurial pill, its properties and uses, 126.
Mercurial lotion, 657.
Mercury, with chalk (Grey Powder), 154; bichloride of, 154; chloride of, 155. See Calomel.
—— a metallic poison, 554; its treatment, ib.
Mesenteric fever, symptoms of, 445; its treatment, 447.
Milk, mammary gland for secreting the, 48.
Milk abscess, 526; its treatment, 527.
Milk fever, its treatment, 526.
Milt, the, 38.
Mind, unsoundness of, 506. See Insanity.
Mindererus' Spirit, 155, 171.
Mineral poisons, 553; treatment of, ib.
Mineral waters, 95; the remedial effects of, 180; classified into saline springs, ib.; sulphureous, 181; chalybeate, and acidulous, 182; mineralised hot springs, 183; Aix-la-Chapelle, ib.; Barèges, and Bath, 184; Beulah, 185; Buxton, and Cheltenham, 186; Clifton, Epsom, and Harrogate, 187; Hartfell, and Homburg, 188; Kissengen, and Leamington, 189; Matlock, Moffat, Pyrmont, Scarborough, and Seidlitz, 190; Selters, Spa, and Tunbridge Wells, 191.
Miscarriage, or Abortion, 527; causes, 528; treatment of, 529.
Mixtures, various, 643-65
Moffat, mineral waters of, 190.
Morbid growths of structure, 78.
Morphia, the active principle of opium, 155.
Mortification, 85; causes of, 530; its treatment, 531.
Mucous membranes, 27.
Mud-baths, 95.
Mumps, characteristics of the, 532; their treatment, ib.
Muriated tincture of iron, esteemed as a tonic, 147.
Muriatic acid, 113.
Muscles, their structure and uses, 11—14; the voluntary and the involuntary, 13; the great pectoral muscle, the diaphragm, and the tendo Achillis, 14.
Muscular rheumatism, 577.
Musk, a stimulating antispasmodic, 156.
Mustard, a useful stimulant, 156.
Mustard poultice, 658.
Myrrh, gum-resin from the bark, 157.

N.

Narcotic poisons, 557; their general treatment, 558, 559.

Narcotic aperient, 644.
Narcotics, stupefying medicines, 109; list of, 110.
Narcotico-irritants, derived from the vegetable kingdom, 559; general treatment of, 560.
Nausea, remedies for, 414.
Neck, dislocation of the, 391.
Nervous diseases, the most complicated and difficult to cure, 532, 533; treatment of, 535. See Neuralgia.
Nervous palpitation of the heart, 480, 481; its treatment, 482.
Nervous system, anatomy of the, 20; central organs of the, 21; the brain, ib.; the ganglia, 22; the spinal cord, the nine pair of nerves, 22; the brachial plexus, &c. 23; pathology of the, 86; the excito-motory and sympathetic systems, 88; St. Vitus's dance, ib.
Nettle-rash, treatment of, 536.
Neuralgia, characteristics of, 537.
—— of the head—tic douloureux and hemicrania, 537.
—— of the stomach,—Angina pectoris, and sciatica, 537.
——Tic douloureux, symptoms of, 537; treatment of, 538.
Night-mare (Incubus), treatment of, 539.
Nightshade, a vegetable poison, 560.
Nitrate of silver, 169.
Nitre, diuretic and refrigerant, 157; applied as nitrate of potash, saltpetre, and sal prunella, 157.
Nitric acid, 114.
Nitric ether, spirit of, a mild stimulant, 173.
Nitro-muriatic acid, 115.
Nitro-muriatic acid liniment, 655.
Nocturnal emissions, 539.
Noxious gases, 612; treatment in cases of suspended animation arising from, 613.
Nursery, importance of the, for children, 221.
Nux vomica, a deadly poison, 560.

O.

Oak bark, 125.
Occupations have a tendency to modify the state of health, 67—70.
Odour of the body, an evidence of disease, 74.
Œsophagus, the, 19.
Oils, their medical uses, 158, 159; oil of Almonds, Cajeput, Castor, and Cod-liver, 158; Croton, Olive, and Turpentine, 159.
Ointment of colchicum, 655; citrine, 656.
Olives, oil of, 159.
Ophthalmia, Chronic, 482; causes of the, ib.
—— Purulent, characteristics of, 482, 483; its treatment, 483.
—— Strumous, symptoms of, 433; remedies for, 484.
Opiate liniment, 654.
Opium, tincture of, 149.
—— a most valuable medicine, 159; its uses and effects, 160—162.
—— a narcotic poison, 558; treatment, ib.
Opium-eaters, 160.
Organic diseases of the heart, 483.
Organs of reproduction, 51.
Ovaria, the, 51.
Ovarian dropsy, symptoms, 399; treatment, 400; characteristics of, 539.
Ovarian tumours, 539.
Ovum of generation, 52.
Oxalic acid, treatment of, as a mineral poison, 553.

P.

Painter's colic, symptoms and treatment of, 328.
Palsy, different kinds of,—the general palsy, and Hemiplegia, 540; Paraplegia, 541; local palsy, 542; shaking palsy, 543; general treatment of, 543, 542.
Pancreas, the, 38.

Paregoric elixir, 162.
Pareira-brava, a tonic diuretic, 162; decoction of, 648.
PATHOLOGY of the fluids, 75; of the human structure, 77; of the circulating organs, 80; of the nervous system, 86, et seq.
Pelvic cavity, the, 28.
Pemphigus, 598. See Skin.
Peritoneum, a membrane of the abdominal viscera, 35.
Personal peculiarities, a predisposing cause of disease, 54.
Peru, balsam of, 123.
Peruvian bark, 124.
Pharynx, the, 19.
Phlegmatic temperament, a predisposing cause of disease, 55.
Phrenitis, inflammation of the brain, 266.
PHYSIC, general practice of,—diseases of children, 193 et seq.; diseases arranged alphabetically, with their causes and treatment, 226 et seq.
Physiology, general remarks on, 3 et seq. See ANATOMY.
Piles (Hæmorrhoids), characteristics of, 545; causes and treatment, ib.
—— Fit of the, its treatment, 546.
Pills, active purgative, 644; croton-oil, ib.; calomel and colocynth, 645; calomel and compound rhubarb, ib.; mild aperient, ib.; cough aperient, 640.
Pimples, 598, 599. See Skin.
Pimply eruptions, 597. See Skin.
Placenta, the, 52.
Pleurisy, 547; causes and treatment, 548.
—— Spurious, treatment of, 548.
Pneumonia, 561; treatment of, 562.
Poisonous food, 557.
Poisons, the nature of, 549; action of, ib.
—— symptoms of poisoning, 550; general treatment of, 551, 552.
—— classed as Non-metallic, Metallic, Vegetable, Animal, Narcotic and Narcotico-irritant, 553. See Irritants.
Polypus, characteristics of the, 561.
Pomegranate bark, 125.
Pomum Adami, 19.
Poppy-heads, their properties, 162.
Potash, a powerful escharotic, 163 (see Caustic); nitrate of, 157, 164; carbonate of, 163; solution of, ib.
Poultices, bread and water, 658; linseed meal, mustard, yeast, and charcoal, ib.; salt and water, 659.
Predisposing causes of disease, 52; hereditary state of the body, ib.; age, 53; sex, 54; personal peculiarities, and temperament, 54, 55.
Pregnancy, state of, 563; signs of, 564; duration of, and reckoning, 567; management, 567, 568; disorders of,—sickness, costiveness, diarrhœa, longings, general irritation, &c. 569, 570; rules as to the general health, 570.
Prescriptions, useful, formulæ of, 641—659.
Prolapsus ani, 571; treatment, ib.
—— of the womb, 572.
Prurigo, 597. See Skin.
Prussic acid, 113; a narcotic poison, 558; treatment, 559.
Psoriasis, 600. See Skin.
Pubes, the, 29.
Purgatives, list of, 102, 103.
Purgative pills, 644.
Purpura, 601. See Skin.
Pustules in the eye, 434.
Pyloric orifice, functions of the, 42.
Pyrmont, mineral waters of, 190.

Q.

Quassia, its useful properties, 164.
Quinine, application of, 164, 165.
Quinine mixture, 653.
Quinsey (Sore-throat), symptoms of, 604; treatment, 605.

R.

Rashes, 596. See Skin.
Red Gum, 597. See Skin.

Refrigerants, cooling medicines, 110; list of, ib.
Regions of the abdomen, 28.
Remittent fever, 437; treatment of, 445.
Reproduction, organs and functions of, 51.
Respiration, physiology of, 33.
Rest, necessary to health, 64.
Rhatany root, its medical uses, 165.
Rheumatism, two varieties of,—acute, and chronic, 572.
—— Acute, symptoms and characteristics of, 572, 573; treatment of, 574.
—— Chronic, characteristics of, 575; treatment of, 576.
—— See also Lumbago and Sciatica.
Rhubarb root, a mild purgative, 166.
Rhubarb pills, 645.
Rhubarb powder, compound, 644.
Ringworm (Scald-head), treatment of, 579.
Rib, broken, treatment of a, 273.
Rickets, associated with Scrofula, 593.
River-bathing, 93.
Rose, 426. See Erysipelas.
Roses, infusion of, 657.
Rubefacients, blistering applications, 108; list of, 109.
Rue, its properties, 167, 168.
Rupia, 598. See Skin.
Rupture, 580. See Hernia.
Russian bath, the, 94.

S.

Sal Prunella, 157.
Saline springs, 180.
Saline mixtures, 643, 652.
Salt and water poultice, 658.
Saltpetre, 157.
Sand-baths, 95.
Sanguification, process of, 44.
Sarsaparilla, its properties and use, 167.
Savin, a vegetable poison, 556.
Scald head, treatment of, 579.
Scalds, 293; treatment of, 294—296; results of, 297.
Scammony, a powerful cathartic, 168.
Scarborough, mineral waters of, 190.
Scarlet Fever, three varieties of, 584.
—— Simple, symptoms of, 584.
—— Scarlatina Anginosa, symptoms of, 584.
—— Malignant Scarlatina, symptoms and causes of, 585; treatment, 586.
Sciatica, characteristics and treatment of, 578.
Scirrhus of the testicle, 302; of the lips, 303.
Scratches, 636.
Scrofula (King's Evil), symptoms of, 588, 599; causes of, 591; prevention of, ib.; its treatment, 592; Rickets associated with, 593.
Scrotum, cancer of the, 303.
Scurvy, characteristics of, 593; causes and treatment, 594.
Sea-bathing, 95.
Secretion, process of, 45, 46; the organs of, 47.
Secretions of the animal system, 27.
Sedatives, 110; liniments for, 654.
Seidlitz, mineral waters of, 190.
Self-nutrition, general view of, 23.
Selters, mineral waters of, 191.
Senega (the root), a stimulating expectorant, 169.
Senna (leaves of), an active cathartic, 168; compound infusion of, 657.
Senna mixtures, 642, 643.
Senses, the bodily, 15 et seq.; the Touch, 15; the Sight, 16; Hearing, 17; Smell, and Taste, 18.
Serpentaria (the Virginian Snake-root), a stimulant, 169.
Serum of the blood, 25, 26.
Sex, a predisposing cause of disease, 54.
Shingles, a disease of the skin, 594; causes and treatment of, 595.
Shoulder or Arm, dislocation of the, symptoms, ib.; mode of reduction, 386.
Shower-bath, the, 94.
Sight, sense of, 16.
Silver, nitrate of, an escharotic, 169; oxide of, 170.

Size of an organ, increased or diminished, symptomatic of disease, 77, 78.
SKIN, diseases of the :—
—— Red rashes or blotches, 596.
—— Pimply eruptions (Red Gum, Lichen, and Prurigo), their causes and treatment, 597.
—— Watery pimples, (Eczema, Herpes, Rupia, and Pemphigus), their treatment, 599.
—— Mattery pimples (Impetigo, and Ecthyma), treatment of, 599.
—— Scaly eruptions, or Dry Tetter (Psoriasis, and Dandriff), treatment of, 600.
—— Purpura, symptoms and treatment of, 601.
—— an evidence of disease, 73.
Skull, cavity of the, 28.
Sleep, a certain amount of, necessary to health, 64.
Small-pox, symptoms of, 602; its treatment, 603.
Smell, sense of, 18.
Smoking, deleterious effects of, 62, 63.
Soap, purgative and diuretic, 170.
Socotrine aloes, the purest species, 116.
Soda, sulphate of, 140, 171.
—— bicarbonate of, its medical application, 171.
—— carbonate of, 171.
—— variously prescribed, 641 et seq.
Sore-throat (Quinsey), symptoms of, 604; treatment, 605.
Spa, mineral waters of, 191.
Spas, account of, 183—192.
Spasm, rigid, 621. See Tetanus.
Spermaceti, an emollient, 172.
Spider's web, its medical uses, 172.
Spinal column, bones of the, 6.
Spinal cord, a central organ of the nervous system, 22.
Spine, distortion of the, or spinal curvature, 365; of three kinds,—the angular outward curvature, the inward curvature, and the lateral curvature, 366, 367; causes of, and treatment, 369, 370, et seq.
Spirit lotion, 656.
Spitting of blood, 476. See Hæmoptysis.
Spleen, the, 38.
Sprains, treatment of, 606.
Springs, mineral, classification of, 180, et seq.
Squill (the bulb), its various properties and uses, 173.
St. Anthony's fire, 426. See Erysipelas.
St. John Long's liniment, 656.
St. Vitus's dance, 88.
Stabs, 635. See Wounds.
Steel mixture, compound, 654.
Stimulants, 110; list of, 111.
Stimulating Emmenagogues, 106.
Stomach, structure and functions of the, 36; process of digestion in the, 42.
Stomach fever of children, symptoms of, 445; its treatment, 447.
Stone, 468. See Gravel.
Stramonium, an excellent sedative, 173.
Strangulation, 611; treatment for, 612.
Strangury, 630. See Urinary disorders.
Structural pathology, 77; disease arising from increased or diminished size of an organ, 77, 78; from structural change, 78; from morbid or malignant growths, 78—80.
Strychnia (the active principle of Nux Vomica), a special stimulant and tonic, 174; a vegetable poison, 560.
Study, intense, injurious to health, 70.
Sty, remedies for a, 435.
Sugar of lead, a sedative and astringent, 175.
Sulphate of iron, a tonic, 147.
Sulphate of zinc lotion, 656.
Sulphur, laxative and diaphoretic, 175
Sulphur aperient, 644.
Sulphur powder, aperient, 649.
Sulphureous springs, 181.
Sulphuret of potash lotion, 657.
Sulphuric acid, 115.
Sulphuric acid liniments, 655.
Suspended Animation, various cases of, 607.

Suspended Animation — Drowning, treatment for, 608.
—— Strangulation, 611; treatment, 612.
—— Noxious gases, or foul air, 612; treatment, 613.
—— Exposure to cold, 614; treatment, ib.
Sweat, pathology of the, 77.
Sweet-bread, the, 38.
Swellings and tumours, various kinds of, 615.
Swooning, remedies for, 436.
Symbols of Apothecaries' weights and measures, 97, 98.
Syncope, causes of, and remedies, 436.
Synovial capsules of joints, 11.
Syphilis (Venereal Disease), 616; symptoms, 617; treatment, 617, 618. See Bubo and Chancre.

T.

Tape-worms, symptoms and treatment of, 633.
Tar, of use in cutaneous diseases, 175.
Tartaric acid, 116.
Tartarised antimony (Tartar Emetic), 119.
Tartarised iron, 147.
Taste, sense of, 18.
Teething, &c., 618, 619.
Temperament, a predisposing cause of disease, 54, 55.
Tendons of the muscles, 26.
Testicle, scirrhus of the, 302; swelling of the, 620.
Tetanus (Rigid Spasm), characteristics of, 621; treatment, 622.
Tetters, or Pimples, different kinds of, 598, 599, 600. See Skin.
Therapeutics, general, — bathing and baths, 91—95; mineral waters, 95.
Thigh, broken, treatment of the, 274.
Thoracic viscera,—the heart and lungs, 29, 30.
Thorax, bones of the, 7; cavity of the, 28.
Throat, choking in the, from various accidents, 314; remedies and treatment, 315, 317.
Thrush, treatment of, 242.
Thumb, dislocation of the, 392.
Tic doulourenx, 537; treatment of, 538.
Tin powder, an anthelmintic, 176.
Tissues, physiology of the, 25, simple fibrous tissues, 26; cellular tissues, 26, 27; formation of the, 49.
Tobacco, deleterious effects of, 62, 63.
Toes, dislocation of the, 391.
Tolu, balsam of, 123.
Tongue, appearance of, in disease, 73; cancer of the, 303.
Tonic Emmenagogues, 107.
Tonics, medicines which increase the tone of the muscular fibre, 111; list of, ib.
Tooth-ache, treatment of, 622.
Topical baths, 95.
Tormentil root, an astringent, 176.
Touch, sense of, 15.
Trachea, an important organ of the voice, 19.
Trunk, bones of the, 7.
Tunbridge Wells, mineral waters of, 191.
Tumours, various kinds of, 615.
Turpentine, the volatile oil of, its uses, 176.
Turpentine enema, 659.

U.

Ulceration, 85.
Ulcers, 616, 617, 623; their treatment, 624.
Umbilical region, 28.
Urinary disorders, causes of, 625; their treatment, 626.
—— Incontinence of urine, 626; causes and treatment, 627.
—— Retention of urine, 627; causes and treatment, 628.
—— Suppression of urine, symptoms and treatment, 629.
—— Strangury, 630.
Urine, appearance of, in disease, 74; pathology of the, 76; state of the, in gravel, 470.
Uva ursi, decoction of, 648.

V.

Vaccination, from the cow-pox, first practised by Dr. Jenner, 350, 351; instructions respecting, 352, 353.
Valerian root, a stimulating antispasmodic, 177.
Valerianate of Zinc, a tonic antispasmodic, 177; of iron, quinine, and soda, ib.
Vapour bath, the, 93.
Vapours, 496. See Hypochondriasis.
Vegetable poisons, treatment of, 556.
Veins, structure and functions of the, 22.
Venereal disease, 616. See Syphilis.
Venomous reptiles, poisonous, 557.
Veratria, a powerful local excitant, 178.
Vermifuge medicines, 100.
Villi, minute projections of the animal tissues, 27.
Vinegar, a good cooling astringent, 178.
Viscera, mechanism of the, 29; the thoracic viscera, ib.; the abdominal viscera, 35, et seq.
Voice, organs of the, 19.
Vomiting, as an evidence of disease, 73; remedies for, 414.

W.

Water in the head, 488. See Hydrocephalus.
Water-brash, remedies for, 415.
Watery pimples, 598. See Skin.
Weights and measures of Apothecaries, tables of, 97, 98.
Wen, an encysted tumour, 630.
Wet-nurses, for children, 222; faults of, 223, 224.
White swellings, causes and varieties of, 615; treatment of, 616.
Whites (Fluor Albus), causes of, and treatment, 450.
—— profuse discharge of, 522; treatment of, ib.
Whitlow, characteristics of the, 630; its treatment, 631.
Whooping-cough, 484. See Hooping-cough.
Windpipe, the, 19.
Womb, cancer of the, 302.
Worm fever of children, symptoms of, 445; its treatment, 447.
Worms,—the round worm, 631; the common thread worm, the long thread worm, the tape worm, and the broad tape worm, 632; symptoms and treatment of, 633.
Wormseed, uses of, 178.
Wormwood, a bitter tonic, 178.
Wounds, and their treatment,—a clean cut or chop, 634; a clean stab, 635; a torn or lacerated wound, 636; bruised wounds, wounds from gunpowder, and scratches, 636; punctured wounds, 637; wounds from fish-hooks, 638.
Wrist, dislocation of the, 391; mode of reduction, ib.

Y.

Yeast or fermenting poultice, 658.
Yellow fever, symptoms of, 638; treatment, 639.

Z.

Zinc, oxide of, 179; sulphate of, ib.
—— a metallic poison, 556; its treatment, ib.
Zinc cerate, 657.
Zinc lotion, acetate of, 655.

THE END.

WELLCOME INSTITUTE LIBRARY

LONDON: PRINTED BY WILLIAM CLOWES AND SONS, STAMFORD STREET

Longfellow's Poetical Works, complete, including The Wayside Inn. *Twenty-four page Engravings, by Birket Foster and others, and a new Portrait.*

——— ; or, without the illustrations, 3s. 6d.

——— **Prose Works, complete.** *Sixteen page Engravings by Birket Foster and others.*

Loudon's (Mrs.) Entertaining Naturalist. New Edition. Revised by W. S. Dallas, F.L.S. *With nearly* 500 *Engravings.* 7s.

Marryat's Masterman Ready; or, The Wreck of the Pacific. 93 *Engravings.*

——— **Mission; or, Scenes in Africa.** (Written for Young People.) *Illustrated by Gilbert and Dalziel.*

——— **Pirate and Three Cutters.** New Edition, with a Memoir of the Author. *With* 20 *Steel Engravings, from Drawings by Clarkson Stanfield, R.A.*

——— **Privateer's-Man One Hundred Years Ago.** *Eight Engravings on Steel, after Stothard.*

——— **Settlers in Canada.** New Edition. *Ten fine Engravings by Gilbert and Dalziel.*

Maxwell's Victories of Wellington and the British Armies. *Illustrations on Steel.*

Michael Angelo and Raphael, their Lives and Works. By Duppa and Quatremere de Quincy. *With* 13 *highly-finished Engravings on Steel.*

Miller's History of the Anglo-Saxons. Written in a popular style, on the basis of Sharon Turner. *Portrait of Alfred, Map of Saxon Britain, and* 12 *elaborate Engravings on Steel.*

Milton's Poetical Works. With a Memoir by James Montgomery, Todd's Verbal Index to all the Poems, and Explanatory Notes. *With* 120 *Engravings by Thompson and others, from Drawings by W. Harvey.* 2 vols.

Vol. 1. Paradise Lost, complete, with Memoir, Notes, and Index.

Vol. 2. Paradise Regained, and other Poems, with Verbal Index to all the Poems.

Mudie's British Birds. Revised by W. C. L. Martin. *Fifty-two Figures and* 7 *Plates of Eggs.* In 2 vols.

——— ; or, *with the plates coloured,* 7s. 6d. per vol.

Naval and Military Heroes of Great Britain; or, Calendar of Victory. Being a Record of British Valour and Conquest by Sea and Land, on every day in the year, from the time of William the Conqueror to the Battle of Inkermann. By Major Johns, R.M., and Lieutenant P. H. Nicolas, R.M. *Twenty-four Portraits.* 6s.

Nicolini's History of the Jesuits: their Origin, Progress, Doctrines, and Designs. *Fine Portraits of Loyola, Lainès, Xavier, Borgia, Acquaviva, Père la Chaise, and Pope Ganganelli.*

Norway and its Scenery. Comprising Price's Journal, with large Additions, and a Road-Book. Edited by T. Forester. *Twenty-two Illustrations.*

Paris and its Environs, including Versailles, St. Cloud, and Excursions into the Champagne Districts. An illustrated Handbook for Travellers. Edited by T. Forester. *Twenty-eight beautiful Engravings.*

Petrarch's Sonnets, and other Poems. Translated into English Verse. By various hands. With a Life of the Poet, by Thomas Campbell. *With* 16 *Engravings.*

Pickering's History of the Races of Man, with an Analytical Synopsis of the Natural History of Man. By Dr. Hall. *Illustrated by numerous Portraits.*

——— ; or, *with the plates coloured,* 7s. 6d.

⁂ An excellent Edition of a work originally published at 3*l.* 3*s.* by the American Government.

Pictorial Handbook of London. Comprising its Antiquities, Architecture, Arts, Manufactures, Trade, Institutions, Exhibitions, Suburbs, &c. *Two hundred and five Engravings, and a large Map, by Lowry.*

This volume contains above 900 pages, and is undoubtedly the cheapest five-shilling volume ever produced.

Pictorial Handbook of Modern Geography, on a Popular Plan. 3s. 6d. *Illustrated by* 150 *Engravings and* 51 *Maps.* 6s.

——— ; or, *with the maps coloured,* 7s. 6d.

Two large Editions of this volume have been sold. The present New Edition is corrected and improved; and, besides introducing the recent Censuses of England and other countries, records the changes which have taken place in Italy and America.

Pope's Poetical Works. Edited by Robert Carruthers. *Numerous Engravings.* 2 vols.

——— **Homer's Iliad.** With Introduction and Notes by J. S. Watson, M.A. *Illustrated by the entire Series of Flaxman's Designs, beautifully engraved by Moses (in the full 8vo. size).*

——— **Homer's Odyssey, Hymns,** &c., by other translators, including Chapman, and Introduction and Notes by J. S. Watson, M.A. *Flaxman's Designs beautifully engraved by Moses.*

Pope's Life. Including many of his Letters. By ROBERT CARRUTHERS. New Edition, revised and enlarged. *Illustrations.*

The preceding 5 *vols. make a complete and elegant edition of Pope's Poetical Works and Translations for* 25*s.*

Pottery and Porcelain, and other Objects of Vertu (a Guide to the Knowledge of). To which is added an Engraved List of all the known Marks and Monograms. By HENRY G. BOHN. *Numerous Engravings.*

———; or, *coloured.* 10*s.* 6*d.*

Prout's (Father) Reliques. New Edition, revised and largely augmented. *Twenty-one spirited Etchings by Maclise.* Two volumes in one. 7*s.* 6*d.*

Recreations in Shooting. By "CRAVEN." New Edition, revised and enlarged. 62 *Engravings on Wood, after Harvey, and* 9 *Engravings on Steel, chiefly after A. Cooper, R.A.*

Redding's History and Descriptions of Wines, Ancient and Modern. *Twenty beautiful Woodcuts.*

Rennie's Insect Architecture. *New Edition.* Revised by the Rev. J. G. WOOD, M.A. [*Now Ready.*

Robinson Crusoe. With Illustrations by STOTHARD and HARVEY. *Twelve beautiful Engravings on Steel, and* 74 *on Wood.*

———; or, without the Steel illustrations, 3*s.* 6*d.*

The prettiest Edition extant.

Rome in the Nineteenth Century. New Edition. Revised by the Author. *Illustrated by* 34 *fine Steel Engravings.* 2 vols.

Southey's Life of Nelson. With Additional Notes. *Illustrated with* 64 *Engravings.*

Starling's (Miss) Noble Deeds of Women; or, Examples of Female Courage, Fortitude, and Virtue. *Fourteen beautiful Illustrations.*

Stuart and Revett's Antiquities of Athens, and other Monuments of Greece. *Illustrated in* 71 *Steel Plates, and numerous Woodcuts.*

Tales of the Genii; or, the Delightful Lessons of Horam. *Numerous Woodcuts, and* 8 *Steel Engravings, after Stothard.*

Tasso's Jerusalem Delivered. Translated into English Spenserian Verse, with a Life of the Author. By J. H. WIFFEN. *Eight Engravings on Steel, and* 24 *on Wood, by Thurston.*

Walker's Manly Exercises. Containing Skating, Riding, Driving, Hunting, Shooting, Sailing, Rowing, Swimming, &c. New Edition, revised by "CRAVEN." *Forty-four Steel Plates, and numerous Woodcuts.*

Walton's Complete Angler. Edited by EDWARD JESSE, Esq. To which is added an Account of Fishing Stations, &c., by H. G. BOHN. *Upwards of* 203 *Engravings.*

———; or, *with* 26 *additional page Illustrations on Steel,* 7*s.* 6*d.*

Wellington, Life of. By AN OLD SOLDIER, from the materials of Maxwell. *Eighteen Engravings.*

White's Natural History of Selborne. With Notes by Sir WILLIAM JARDINE and EDWARD JESSE, Esq. *Illustrated by* 40 *highly-finished Engravings.*

———; or, *with the plates coloured,* 7*s.* 6*d.*

Young, The, Lady's Book. A Manual of Elegant Recreations, Arts, Sciences, and Accomplishments; including Geology, Mineralogy, Conchology, Botany, Entomology, Ornithology, Costume, Embroidery, the Escritoire, Archery, Riding, Music (instrumental and vocal), Dancing, Exercises, Painting, Photography, &c. &c. Edited by distinguished Professors. *Twelve Hundred Woodcut Illustrations, and several fine Engravings on Steel.* 7*s.* 6*d.*

———; or, *cloth gilt, gilt edges,* 9*s.*

XI.

Bohn's Classical Library.

UNIFORM WITH THE STANDARD LIBRARY, AT 5*s.* PER VOLUME (EXCEPTING THOSE MARKED OTHERWISE).

Æschylus. Literally Translated into English Prose by an Oxonian. 3*s.* 6*d.*

———, **Appendix to.** Containing the New Readings given in Hermann's posthumous Edition of Æschylus. By GEORGE BURGES, M.A. 3*s.* 6*d.*

Ammianus Marcellinus. History of Rome from Constantius to Valens. Translated by C. D. YONGE, B.A. Double volume, 7*s.* 6*d.*

⁂ *This is a very circumstantial and amusing history. Gibbon expresses himself largely indebted to it.*

Apuleius, the Golden Ass; Death of Socrates; Florida; and Discourse on Magic. To which is added a Metrical Version of Cupid and Psyche; and Mrs. Tighe's Psyche. *Frontispiece.*

Aristophanes' Comedies. Literally Translated, with Notes and Extracts from Frere's and other Metrical Versions, by W. J. HICKIE. 2 vols.

Vol. 1. Acharnians, Knights, Clouds, Wasps, Peace, and Birds.

Vol. 2. Lysistrata, Thesmophoriazusæ, Frogs, Ecclesiazusæ, and Plutus.

Aristotle's Ethics. Literally Translated by Archdeacon BROWNE, late Classical Professor of King's College.

——— **Politics and Economics.** Translated by E. WALFORD, M.A.

——— **Metaphysics.** Literally Translated, with Notes, Analysis, Examination Questions, and Index, by the Rev. JOHN H. M'MAHON, M.A., and Gold Medallist in Metaphysics, T.C.D.

——— **History of Animals.** In Ten Books. Translated, with Notes and Index, by RICHARD CRESSWELL, M.A.

——— **Organon; or, Logical Treatises.** With Notes, &c. By O. F. OWEN, M.A. 2 vols., 3*s.* 6*d.* each.

——— **Rhetoric and Poetics.** Literally Translated, with Examination Questions and Notes, by an Oxonian.

Athenæus. The Deipnosophists; or, the Banquet of the Learned. Translated by C. D. YONGE, B.A. 3 vols.

Cæsar. Complete, with the Alexandrian, African, and Spanish Wars. Literally Translated, with Notes.

Catullus, Tibullus, and the Vigil of Venus. A Literal Prose Translation. To which are added Metrical Versions by LAMB, GRAINGER, and others. *Frontispiece.*

Cicero's Orations. Literally Translated by C. D. YONGE, B.A. In 4 vols.

Vol. 1. Contains the Orations against Verres, &c. *Portrait.*

Vol. 2. Catiline, Archias, Agrarian Law, Rabirius, Murena, Sylla, &c.

Vol. 3. Orations for his House, Plancius, Sextius, Cœlius, Milo, Ligarius, &c.

Vol. 4. Miscellaneous Orations, and Rhetorical Works; with General Index to the four volumes.

——— **on Oratory and Orators.** By J. S. WATSON, M.A.

——— **on the Nature of the Gods,** Divination, Fate, Laws, a Republic, &c. Translated by C. D. YONGE, B.A., and F. BARHAM.

Cicero's Academics, De Finibus, and Tusculan Questions. By C. D. YONGE, B.A. With Sketch of the Greek Philosophy.

——— **Offices, Old Age, Friendship,** Scipio's Dream, Paradoxes, &c. Literally Translated, by R. EDMONDS. 3*s.* 6*d.*

Demosthenes' Orations. Translated, with Notes, by C. RANN KENNEDY. In 5 volumes.

Vol. 1. The Olynthiac, Philippic, and other Public Orations. 3*s.* 6*d.*

Vol. 2. On the Crown and on the Embassy.

Vol. 3. Against Leptines, Midias, Androtrion, and Aristocrates.

Vol. 4. Private and other Orations.

Vol. 5. Miscellaneous Orations.

Dictionary of Latin Quotations. Including Proverbs, Maxims, Mottoes, Law Terms and Phrases; and a Collection of above 500 Greek Quotations. With all the quantities marked, & English Translations.

———, **with Index Verborum.** 6*s.* Index Verborum only. 1*s.*

Diogenes Laertius. Lives and Opinions of the Ancient Philosophers. Translated, with Notes, by C. D. YONGE.

Euripides. Literally Translated. 2 vols.

Vol. 1. Hecuba, Orestes, Medea, Hippolytus, Alcestis, Bacchæ, Heraclidæ, Iphigenia in Aulide, and Iphigenia in Tauris.

Vol. 2. Hercules Furens, Troades, Ion, Andromache, Suppliants, Helen, Electra, Cyclops, Rhesus.

Greek Anthology. Literally Translated. With Metrical Versions by various Authors.

Greek Romances of Heliodorus, Longus, and Achilles Tatius.

Herodotus. A New and Literal Translation, by HENRY CARY, M.A., of Worcester College, Oxford.

Hesiod, Callimachus, and Theognis. Literally Translated, with Notes, by J. BANKS, M.A.

Homer's Iliad. Literally Translated, by an OXONIAN.

——— **Odyssey, Hymns, &c.** Literally Translated, by an OXONIAN.

Horace. Literally Translated, by SMART. Carefully revised by an OXONIAN. 3*s.* 6*d.*

Justin, Cornelius Nepos, and Eutropius. Literally Translated, with Notes and Index, by J. S. WATSON, M.A.

Juvenal, Persius, Sulpicia, and Lucilius. By L. EVANS, M.A. With the Metrical Version by Gifford. *Frontispiece.*

Livy. A new and Literal Translation. By Dr. SPILLAN and others. In 4 vols.
- Vol. 1. Contains Books 1—8.
- Vol. 2. Books 9—26.
- Vol. 3. Books 27—36.
- Vol. 4. Books 37 to the end; and Index.

Lucan's Pharsalia. Translated, with Notes, by H. T. RILEY.

Lucretius. Literally Translated, with Notes, by the Rev. J. S. WATSON, M.A. And the Metrical Version by J. M. GOOD.

Martial's Epigrams, complete. Literally Translated. Each accompanied by one or more Verse Translations selected from the Works of English Poets, and other sources. With a copious Index. Double volume (660 pages). 7*s.* 6*d.*

Ovid's Works, complete. Literally Translated. 3 vols.
- Vol. 1. Fasti, Tristia, Epistles, &c.
- Vol. 2. Metamorphoses.
- Vol. 3. Heroides, Art of Love, &c.

Pindar. Literally Translated, by DAWSON W. TURNER, and the Metrical Version by ABRAHAM MOORE.

Plato's Works. Translated by the Rev. H. CARY and others. In 6 vols.
- Vol. 1. The Apology of Socrates, Crito, Phædo, Gorgias, Protagoras, Phædrus, Theætetus, Euthyphron, Lysis.
- Vol. 2. The Republic, Timæus, & Critias.
- Vol. 3. Meno, Euthydemus, The Sophist, Statesman, Cratylus, Parmenides, and the Banquet.
- Vol. 4. Philebus, Charmides, Laches, The Two Alcibiades, and Ten other Dialogues.
- Vol. 5. The Laws.
- Vol. 6. The Doubtful Works. With General Index.

Plautus's Comedies. Literally Translated, with Notes, by H. T. RILEY, B.A. In 2 vols.

Pliny's Natural History. Translated, with Copious Notes, by the late JOHN BOSTOCK, M.D., F.R.S., and H. T. RILEY, B.A. In 6 vols.

Propertius, Petronius, and Johannes Secundus. Literally Translated, and accompanied by Poetical Versions, from various sources.

Quintilian's Institutes of Oratory. Literally Translated, with Notes, &c., by J. S. WATSON, M.A. In 2 vols.

Sallust, Florus, and Velleius Paterculus. With Copious Notes, Biographical Notices, and Index, by J. S. WATSON.

Sophocles. The Oxford Translation revised.

Standard Library Atlas of Classical Geography. *Twenty-two large coloured Maps according to the latest authorities.* With a complete Index (accentuated), giving the latitude and longitude of every place named in the Maps. Imp. 8vo. 7*s.* 6*d.*

Strabo's Geography. Translated, with Copious Notes, by W. FALCONER, M.A., and H. C. HAMILTON, Esq. With Index, giving the Ancient and Modern Names. In 3 vols.

Suetonius' Lives of the Twelve Cæsars, and other Works. Thomson's Translation, revised, with Notes, by T. FORESTER.

Tacitus. Literally Translated, with Notes. In 2 vols.
- Vol. 1. The Annals.
- Vol. 2. The History, Germania, Agricola, &c. With Index.

Terence and Phædrus. By H. T. RILEY, B.A.

Theocritus, Bion, Moschus, and Tyrtæus. By J. BANKS, M.A. With the Metrical Versions of Chapman.

Thucydides. Literally Translated by Rev. H. DALE. In 2 vols. 3*s.* 6*d.* each.

Virgil. Literally Translated by DAVIDSON. New Edition, carefully revised. 3*s.* 6*d.*

Xenophon's Works. In 3 Vols.
- Vol. 1. The Anabasis and Memorabilia. Translated, with Notes, by J. S. WATSON, M.A. And a Geographical Commentary, by W. F. AINSWORTH, F.S.A., F.R.G.S., &c.
- Vol. 2. Cyropædia and Hellenics. By J. S. WATSON, M.A., and the Rev. H. DALE.
- Vol. 3. The Minor Works. By J. S. WATSON, M.A.

XII.

Bohn's Scientific Library.

UNIFORM WITH THE STANDARD LIBRARY, AT 5*s.* PER VOLUME (EXCEPTING THOSE MARKED OTHERWISE).

Agassiz and Gould's Comparative Physiology. Enlarged by Dr WRIGHT. *Upwards of* 400 *Engravings.*

Bacon's Novum Organum and Advancement of Learning. Complete, with Notes, by J. DEVEY. M.A.

Blair's Chronological Tables, Revised and Enlarged. Comprehending the Chronology and History of the World, from the earliest times. By J. WILLOUGHBY ROSSE. Double Volume. 10*s.*; or, half-bound, 10*s.* 6*d.*

Index of Dates. Comprehending the principal Facts in the Chronology and History of the World, from the earliest to the present time, alphabetically arranged. By J. W. ROSSE. Double volume, 10*s.*; or, half-bound, 10*s.* 6*d.*

Bolley's Manual of Technical Analysis. A Guide for the Testing of Natural and Artificial Substances. By B. H. PAUL. 100 *Wood Engravings.*

BRIDGEWATER TREATISES.—

——— **Bell on the Hand.** Its Mechanism and Vital Endowments as evincing Design. *Seventh Edition Revised.*

——— **Kirby on the History, Habits,** and Instincts of Animals. Edited, with Notes, by T. RYMER JONES. *Numerous Engravings, many of which are additional.* In 2 vols.

——— **Kidd on the Adaptation of** External Nature to the Physical Condition of Man. 3*s.* 6*d.*

——— **Whewell's Astronomy and** General Physics, considered with reference to Natural Theology. 3*s.* 6*d.*

——— **Chalmers on the Adaptation** of External Nature to the Moral and Intellectual Constitution of Man. 5*s.*

——— **Prout's Treatise on Chemistry,** Meteorology, and Digestion. Edited by Dr. J. W. GRIFFITH.

——— **Buckland's Geology and** Mineralogy. *With numerous Illustrations.* [*Nearly Ready.*

——— **Roget's Animal and Vegetable** Physiology. *Illustrated.* In 2 vols. 6*s.* each.

Carpenter's (Dr. W. B.) Zoology. A Systematic View of the Structure, Habits, Instincts, and Uses, of the principal Families of the Animal Kingdom, and of the chief forms of Fossil Remains. New edition, revised to the present time, under arrangement with the Author, by W. S. DALLAS, F.L.S. *Illustrated with many hundred fine Wood Engravings.* In 2 vols. 6*s.* each.

——— **Mechanical Philosophy, Astronomy,** and Horology. A Popular Exposition. 183 *Illustrations.*

——— **Vegetable Physiology and** Systematic Botany. A complete Introduction to the Knowledge of Plants. New Edition, revised, under arrangement with the Author, by E. LANKESTER, M.D., &c. *Several hundred Illustrations on Wood.* 6*s.*

——— **Animal Physiology.** New Edition, thoroughly revised, and in part re-written by the Author. *Upwards of* 300 *capital Illustrations.* 6*s.*

hess Congress of 1862. A Collection of the Games played, and a Selection of the Problems sent in for the Competition. Edited by J. LÖWENTHAL, Manager. With an Account of the Proceedings, and a Memoir of the British Chess Association, by J. W. MEDLEY, Hon. Sec. 7*s.*

hevreul on Colour. Containing the Principles of Harmony and Contrast of Colours, and their application to the Arts. Translated from the French by CHARLES MARTEL. Only complete Edition. *Several Plates.* Or, with an additional series of 16 Plates in Colours. 7*s.* 6*d.*

Clark's (Hugh) Introduction to Heraldry. *With nearly* 1000 *Illustrations.* 18*th Edition.* Revised and enlarged by J. R. PLANCHÉ, Rouge Croix. Or, with all the Illustrations coloured, 15*s.*

Comte's Philosophy of the Sciences. Edited by G. H. LEWES.

Ennemoser's History of Magic. Translated by WILLIAM HOWITT. With an Appendix of the most remarkable and best authenticated Stories of Apparitions, Dreams, Table-Turning, and Spirit-Rapping, &c. In 2 vols.

Handbook of Domestic Medicine. Popularly arranged. By Dr. HENRY DAVIES. 700 pages. With complete Index.

Handbook of Games. By various Amateurs and Professors. Comprising treatises on all the principal Games of chance, skill, and manual dexterity. In all, above 40 games (the Whist, Draughts, and Billiards being especially comprehensive). Edited by H. G. BOHN. *Illustrated by numerous Diagrams.*

Hogg's (Jabez) Elements of Experimental and Natural Philosophy. Containing Mechanics, Pneumatics, Hydrostatics, Hydraulics, Acoustics, Optics, Caloric, Electricity, Voltaism, and Magnetism. New Edition, enlarged. *Upwards of* 400 *Woodcuts.*

Hind's Introduction to Astronomy. With a Vocabulary, containing an Explanation of all the Terms in present use. New Edition, enlarged. *Numerous Engravings.* 3*s.* 6*d.*

Humboldt's Cosmos; or Sketch of a Physical Description of the Universe. Translated by E. C. OTTÉ and W. S. DALLAS, F.L.S. *Fine Portrait.* In five vols. 3*s.* 6*d.* each; excepting Vol. V., 5*s.*

⁂ In this edition the notes are placed beneath the text, Humboldt's analytical Summaries and the passages hitherto suppressed are included, and new and comprehensive Indices are added.

——— **Travels in America.** In 3 vols.

——— **Views of Nature; or,** Contemplations of the Sublime Phenomena of Creation. Translated by E. C. OTTÉ and H. G. BOHN. A fac-simile letter from the Author to the Publisher; translations of the quotations, and a complete Index.

Humphrey's Coin Collector's Manual. A popular Introduction to the Study of Coins. *Highly finished Engravings.* In 2 vols.

Hunt's (Robert) Poetry of Science; or, Studies of the Physical Phenomena of Nature. By Professor Hunt. New Edition, enlarged.

Index of Dates. *See* Blair's Tables.

Joyce's Scientific Dialogues. Completed to the present state of Knowledge, by Dr. Griffith. *Numerous Woodcuts.*

Knight's (Chas.) Knowledge is Power. A Popular Manual of Political Economy.

Lectures on Painting. By the Royal Academicians. With Introductory Essay, and Notes by R. Wornum, Esq. *Portraits.*

Mantell's (Dr.) Geological Excursions through the Isle of Wight and Dorsetshire. New Edition, by T. Rupert Jones, Esq. *Numerous beautifully executed Woodcuts, and a Geological Map.*

——— **Medals of Creation;** or, First Lessons in Geology and the Study of Organic Remains; including Geological Excursions. New Edition, revised. *Coloured Plates, and several hundred beautiful Woodcuts.* In 2 vols., 7*s.* 6*d.* each.

——— **Petrifactions and their** Teachings. An Illustrated Handbook to the Organic Remains in the British Museum. *Numerous Engravings.* 6*s.*

——— **Wonders of Geology;** or, a Familiar Exposition of Geological Phenomena. New Edition, augmented by T. Rupert Jones, F.G.S. *Coloured Geological Map of England, Plates, and nearly* 200 *beautiful Woodcuts.* In 2 vols., 7*s.* 6*d.* each.

Morphy's Games of Chess. Being the Matches and best Games played by the American Champion, with Explanatory and Analytical Notes, by J. Löwenthal. *Portrait* and Memoir.

It contains by far the largest collection of games played by Mr. Morphy extant in any form, and has received his endorsement and co-operation.

Oersted's Soul in Nature, &c. *Portrait.*

Richardson's Geology, including Mineralogy and Palæontology. Revised and enlarged, by Dr. T. Wright. *Upwards of* 400 *Illustrations.*

Schouw's Earth, Plants, and Man; and Kobell's Sketches from the Mineral Kingdom. Translated by A. Henfrey, F.R.S. *Coloured Map of the Geography of Plants.*

Smith's (Pye) Geology and Scripture; or, The Relation between the Holy Scriptures and Geological Science.

Stanley's Classified Synopsis of the Principal Painters of the Dutch and Flemish Schools.

Staunton's Chess-player's Handbook. *Numerous Diagrams.*

——— **Chess Praxis.** A Supplement to the Chess-player's Handbook. Containing all the most important modern improvements in the Openings, illustrated by actual Games; a revised Code of Chess Laws; and a Selection of Mr. Morphy's Games in England and France. 6*s.*

——— **Chess-player's Companion.** Comprising a new Treatise on Odds, Collection of Match Games, and a Selection of Original Problems.

——— **Chess Tournament of 1851.** *Numerous Illustrations.*

Stockhardt's Principles of Chemistry, exemplified in a series of simple experiments. *Upwards of* 270 *Illustrations.*

——— **Agricultural Chemistry;** or, Chemical Field Lectures. Addressed to Farmers. Translated, with Notes, by Professor Henfrey, F.R.S. To which is added, a Paper on Liquid Manure, by J. J. Mechi, Esq.

Ure's (Dr. A.) Cotton Manufacture of Great Britain, systematically investigated; with an introductory view of its comparative state in Foreign Countries. New Edition, revised and completed to the present time, by P. L. Simmonds. *One hundred and fifty Illustrations.* In 2 vols.

——— **Philosophy of Manufactures;** or, An Exposition of the Factory System of Great Britain. New Ed., continued to the present time, by P. L. Simmonds. 7*s.* 6*d.*

XIII.

Bohn's Cheap Series.

Berber, The; or, The Mountaineer of the Atlas. A Tale of Morocco, by W. S. Mayo, M.D. 1*s.* 6*d.*

Boswell's Life of Johnson. Including his Tour to the Hebrides, Tour in Wales, &c. Edited, with large additions and Notes, by the Right Hon. John Wilson Croker. The second and most complete Copyright Edition, re-arranged and revised according to the suggestions of Lord Macaulay, by the late John Wright, Esq., with further additions by Mr. Croker. *Upwards of* 40 *fine E gravings on Steel.* In 4 vols. cloth, 4 each, or 8 parts 2*s.* each.

*** The public has now for 16*s.* what was formerly published at 2*l.*

Boswell's Johnsoniana. A Collectio of Miscellaneous Anecdotes and Saying of Dr. Samuel Johnson, gathered fron nearly a hundred publications. *A Seque to the preceding, of which it forms vol.* 5, *or parts* 9 *and* 10. *Engravings on Steel* In 1 vol. cloth, 4*s.*, or in 2 parts, 2*s.* each

Cape and the Kaffirs. A Diary of Five Years' Residence. With a Chapter of Advice to Emigrants. By H. WARD. 2*s.*

Carpenter's (Dr. W. B.) Physiology of Temperance and Total Abstinence. On the Effects of Alcoholic Liquors. 1*s.*; or, on fine paper, cloth, 2*s.* 6*d.*

Cinq-Mars; or a Conspiracy under Louis XIII. An Historical Romance by Count Alfred de Vigny. Translated by W. HAZLITT. 2*s.*

Dibdin's Sea Songs (Admiralty Edition). *Illustrations by Cruikshank.* 2*s.* 6*d.*

Emerson's Orations and Lectures. 1*s.*

——— **Representative Men.** Complete. 1*s.*

Franklin's (Benjamin) Genuine Autobiography. From the Original Manuscript. By JARED SPARKS. 1*s.*

Gervinus's Introduction to the History of the 19th Century. From the German. 1*s.*

Guizot's Life of Monk. 1*s.* 6*d.*

——— **Monk's Contemporaries.** Studies on the English Revolution of 1688. *Portrait of Clarendon.* 1*s.* 6*d.*

Hawthorne's (Nathaniel) Twice Told Tales. 1*s.*

——— **the Same.** Second Series. 1*s.*

——— **Snow Image & other Tales.** 1*s.*

——— **Scarlet Letter.** 1*s.*

——— **House with the Seven Gables.** A Romance. 1*s.*

Irving's (Washington) Life of Mohammed. *Portrait.* 1*s.* 6*d.*

——— **Successors of Mohammed.** 1*s.* 6*d.*

——— **Life of Goldsmith.** 1*s.* 6*d.*

——— **Sketch Book.** 1*s.* 6*d.*

——— **Tales of a Traveller.** 1*s.* 6*d.*

——— **Tour on the Prairies.** 1*s.*

——— **Conquests of Granada and** Spain. 2 vols. 1*s.* 6*d.* each.

——— **Life of Columbus.** 2 vols. 1*s.* 6*d.* each.

——— **Companions of Columbus.** 1*s.* 6*d.*

——— **Adventures of Captain Bonneville.** 1*s.* 6*d.*

——— **Knickerbocker's New York.** 1*s.* 6*d.*

——— **Tales of the Alhambra.** 1*s.* 6*d.*

——— **Conquest of Florida.** 1*s.* 6*d.*

Irving's Abbotsford and Newstead. 1*s.*

——— **Salmagundi.** 1*s.* 6*d.*

——— **Bracebridge Hall.** 1*s.* 6*d.*

——— **Astoria.** 2*s.*

——— **Wolfert's Roost, and other** Tales. 1*s.*; fine paper, 1*s.* 6*d.*

——— **Life of Washington.** Authorized Edition (uniform with the Works). *Fine Portrait, &c.* 5 parts, with General Index. 2*s.* 6*d.* each.

——— **Life and Letters.** By his Nephew, PIERRE E. IRVING. *Portrait.* In 4 parts. 2*s.* each.

*** For Washington Irving's Collected Works, see p. 4.

Lamartine's Genevieve; or, The History of a Servant Girl. Translated by A. R. SCOBLE. 1*s.* 6*d.*

——— **Stonemason of Saintpoint.** A Village Tale. 1*s.* 6*d.*

——— **Three Months in Power.** 2*s.*

Lion Hunting and Sporting Life in Algeria. By JULES GERARD, the "Lion Killer." *Twelve Engravings.* 1*s.* 6*d.*

London and its Environs. By CYRUS REDDING. *Numerous Illustrations.* 2*s.*

Mayhew's Image of his Father. *Twelve page Illustrations on Steel by* "PHIZ." 2*s.*

Modern Novelists of France. Containing Paul Huet, the Young Midshipman, and Kernock the Corsair, by Eugene Sue; Physiology of the General Lover, by Soulie; the Poacher, by Jules Janin; Jenny, and Husbands, by Paul de Kock. 2*s.*

Munchausen's (Baron) Life and Adventures. 1*s.*

Preachers and Preaching. Including sketches of Robert Hall, Newman, Chalmers, Irving, Melvill, Spurgeon, Bellew, Dale, Cumming, &c. 1*s.* 6*d.*

Sandford and Merton. By THOMAS DAY. *Eight fine Engravings by Anelay.* 2*s.*

Taylor's El Dorado; or, Pictures of the Gold Region. 2 vols. 1*s.* each.

Willis's (N. Parker) People I have Met; or, Pictures of Society, and People of Mark. 1*s.* 6*d.*

——— **Convalescent; or, Rambles** and Adventures. 1*s.* 6*d.*

——— **Life Here and There; or,** Sketches of Society and Adventure. 1*s.* 6*d.*

——— **Hurry-graphs; or, Sketches** of Scenery, Celebrities, and Society. 1*s.* 6*d.*

——— **Pencillings by the Way.** *Four fine plates.* 2*s.* 6*d.*